

=> FILE REG
FILE 'REGISTRY' ENTERED ON 03 JUL 2008
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=> D HIS

FILE 'HCAPLUS'
L1 362 S KNIFTON ?/AU
L2 18861 S JAMES ?/AU
L3 191 S SLAUGH ?/AU
L4 150 S WEIDER ?/AU
L5 33199 S ALLEN ?/AU
L6 14805 S POWELL ?/AU
L7 1 S L1 AND L2 AND L3 AND L4 AND L5 AND L6
L8 160 S PROPANEDIOL? AND COBALT# AND IRON#
L9 2 S (L1-L6) AND L8
SEL L9 2 RN

FILE 'REGISTRY'
L10 24 S E1-E24
L11 2 S L10 AND CO/ELS
SEL L11 1 RN
L12 1 S E25
SAV L12 COR598/A
L13 4 S L10 AND FE/ELS
SEL L13 1,2,4 RN
L14 3 S E26-E28
SAV L14 COR598A/A

FILE 'LREGISTRY'
E QUINOLINE/CN

FILE 'REGISTRY'
L15 2 S L10 AND P/ELS

FILE 'HCA'
L16 4392 S L12
L17 6412 S L14
L18 365 S L16 AND L17

FILE 'REGISTRY'
SEL L13 1 RN
L19 1 S E1

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FILE 'HCA'
L20      10 S L19
L21      1 S L20 AND L16

FILE 'HCAPLUS'
      SEL L7 1 RN

FILE 'REGISTRY'
L22      19 S E2-E20
L23      1 S L22 AND CO/ELS
      E OCTAETHYLPORPHYRIN IRON CHLORIDE/CN
L24      1 S E9

FILE 'HCA'
L25      210 S L24
L26      0 S L25 AND L16

FILE 'REGISTRY'
L27      5 S L22 AND RU/ELS
L28      54797 S (C (L) H (L) P (L) FE)/ELS
      E CCS/CI
L29      37486 S L28 AND COORDINATION COMPOUND/CI
L30      20381 S L29 AND 1/M

FILE 'HCA'
L31      7757 S L30
L32      63 S L16 AND L31

FILE 'REGISTRY'
L33      1 S 504-63-2

FILE 'HCA'
L34      881 S L33/P
L35      0 S L32 AND L34
L36      16772 S L28
L37      175 S L16 AND L36
L38      0 S L37 AND L34
L39      604 S L23
L40      0 S L39 AND L31
L41      0 S L39 AND L36

FILE 'REGISTRY'
L42      144946 S (C (L) CO)/ELS AND CCS/CI

FILE 'HCA'
L43      88664 S L42

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L44 601 S L43 AND L31
L45 0 S L44 AND L34
L46 1367 S L43 AND L36
L47 0 S L46 AND L34

FILE 'REGISTRY'

L48 108027 S (C (L) N (L) FE)/ELS AND CCS/CI

FILE 'HCA'

L49 88389 S L48
L50 1 S L18 AND L34
L51 110 S L16 AND L49
L52 1 S L51 AND L34
L53 9274 S L43 AND L49
L54 1 S L53 AND L34

FILE 'REGISTRY'

L55 148430 S CO/ELS AND CCS/CI
L56 192396 S FE/ELS AND CCS/CI

FILE 'HCA'

L57 95118 S L55

FILE 'REGISTRY'

L58 189225 S L56 NOT L55

FILE 'HCA'

L59 133975 S L58
L60 14476 S L57 AND L59
L61 2 S L60 AND L34

FILE 'REGISTRY'

 E CO/ELS
L62 237050 S (CO (L) C)/ELS
L63 494674 S (FE (L) C)/ELS

FILE 'HCA'

L64 172855 S L62
L65 14401 S L64 AND L59
L66 2 S L65 AND L34
L67 11137 S L29
L68 139 S L16 AND L67
L69 QUE CAT# OR CATALY?
L70 43 S L68 AND L69
L71 46911 S (FE OR IRON#) (2A) COBAL T#
L72 5 S L70 AND L71
L73 7408 S HYDROFORMYL?

L74 9 S L68 AND L73
L75 9 S L70 AND L73

FILE 'LREGISTRY'
L76 STR

FILE 'REGISTRY'
L77 50 S L76
L78 63414 S L76 FUL
 SAV L78 COR598B/A
L79 63079 S L78 NOT CO/ELS
L80 10880 S L79 AND P/ELS
L81 52199 S L79 NOT L80

FILE 'HCA'
L82 3176 S L80
L83 43530 S L81
L84 20 S L16 AND L82
L85 0 S L84 AND L34
L86 0 S L84 AND L69
L87 0 S L84 AND L73
L88 468 S L82 AND (L64 OR L57)

FILE 'LREGISTRY'
L89 STR L76

FILE 'REGISTRY'
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L91 7998 S L89 SSS FUL SUB=L78
 SAV L91 COR598C/A
L92 55176 S L79 NOT L91

FILE 'HCA'
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L94 44144 S L92
L95 227 S L93 AND (L64 OR L57)
L96 0 S L95 AND L34
L97 3 S L95 AND L73
L98 28 S L95 AND L69
L99 10 S L98 AND L71
L100 22 S L94 AND L16
L101 1 S L100 AND L34
L102 2 S L100 AND L73
L103 6 S L100 AND L69
L104 2 S L103 AND L71
L105 6292 S L94 AND (L64 OR L57)
L106 1 S L105 AND L34

L107 4 S L105 AND L73
L108 1419 S L105 AND L69
L109 336 S L108 AND L71
L110 25 S L21 OR L50 OR L52 OR L54 OR L61 OR L66 OR L72 OR L97 OR
L111 19 S 1840-2001/PY,PRY,AY AND L110

FILE 'REGISTRY'

=> D L78 QUE STAT
L76 STR

G1~~1~~Fe~~2~~G1~~3~~
1 2 3

VAR G1=P/N
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 3

STEREO ATTRIBUTES: NONE
L78 63414 SEA FILE=REGISTRY SSS FUL L76

100.0% PROCESSED 255174 ITERATIONS 63414 ANSWERS
SEARCH TIME: 00.00.01

=> FILE HCA
FILE 'HCA' ENTERED ON 03 JUL 2008
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=> D L111 1-19 BIB ABS HITSTR HITIND

L111 ANSWER 1 OF 19 HCA COPYRIGHT 2008 ACS on STN
AN 138:5839 HCA Full-text

TI One-step production of 1, 3-propanediol from ethylene oxide and
 syngas with an optionally ligated cobalt-iron
 catalyst under mild conditions
 IN Allen, Kevin Dale; James, Talmadge Gail; Knifion, John Frederick;
 Powell, Joseph Broun; Slaugh, Lynn Henry; Weider, Paul Richard
 PA Shell Internationale Research Maatschappij BV, Neth.
 SO PCT Int. Appl., 36 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	WO 2002094437	A1	20021128	WO 2002-EP5476	200205 16

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W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH,
 CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD,
 GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ,
 LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,
 NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ,
 TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ,
 BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI,
 FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG,
 CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

US	20030027717	A1	20030206	US 2002-146675	200205 15
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US	6750373	B2	20040615		
TW	592819	B	20040621	TW 2002-91110123	200205 15

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CA	2447134	A1	20021128	CA 2002-2447134	200205 16
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AU	2002338961	A1	20021203	AU 2002-338961	200205 16
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EP	1409132	A1	20040421	EP 2002-743051	200205
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16

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R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,
 PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
 BR 2002009847 A 20040615 BR 2002-9847

200205
16

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CN 1538877 A 20041020 CN 2002-811696

200205
16

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JP 2005508242 T 20050331 JP 2002-591147

200205
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RU 2297880 C2 20070427 RU 2003-136427

200205
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IN 2003DN01943 A 20051216 IN 2003-DN1943

200311
17

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MX 2003PA10574 A 20040302 MX 2003-PA10574

200311
18

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US 20040176648 A1 20040909 US 2004-790598

200403
01

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PRAI US 2001-291827P P 20010518 <--
 US 2002-146675 A3 20020515
 WO 2002-EP5476 W 20020516

AB The present invention discloses a **catalyst** compn. comprising: (a) a cobalt component; and (b) an iron component, optionally ligated with a ligand selected from the group consisting of N-heterocycle, phosphine, and porphyrin moieties; and a process for prepg. 1,3-propanediol from ethylene oxide and syngas using such a **catalyst** compn.

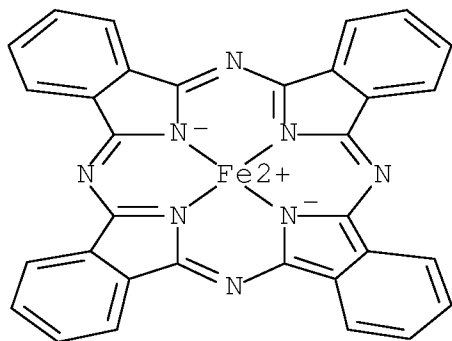
IT 132-16-1, Iron(II) phthalocyanine 10210-68-1,
 Dicobalt octacarbonyl 13463-40-6, Iron pentacarbonyl
 41697-90-9

(**catalyst** precursor; one-step prodn. of 1,
 3-propanediol from ethylene oxide and syngas with an optionally
 ligated cobalt-iron **catalyst** under

mild conditions)

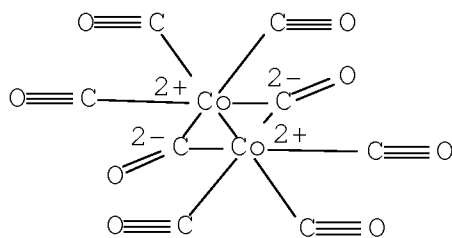
RN 132-16-1 HCA

CN Iron, [29H,31H-phthalocyaninato(2-)-κN29,κN30,κN31,κN32]-, (SP-4-1)- (CA INDEX NAME)



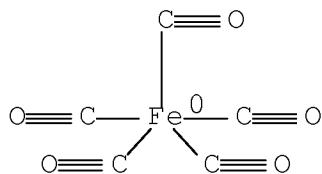
RN 10210-68-1 HCA

CN Cobalt, di-μ-carbonylhexacarbonyldi-, (Co-Co) (CA INDEX NAME)



RN 13463-40-6 HCA

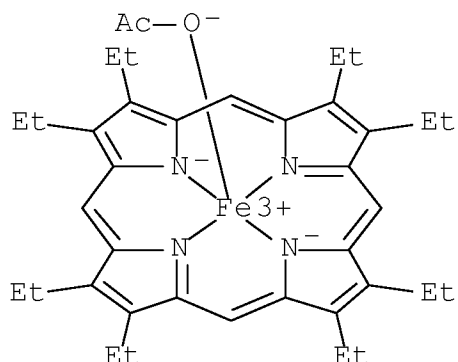
CN Iron carbonyl (Fe(CO)₅), (TB-5-11)- (CA INDEX NAME)



RN 41697-90-9 HCA

CN Iron, (acetato-O)[2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-

)-κN21,κN22,κN23,κN24]-, (SP-5-12)- (9CI)
(CA INDEX NAME)



IT 504-63-2P, 1,3-Propanediol
(one-step prodn. of 1, 3-propanediol from ethylene oxide and
syngas with an optionally ligated **cobalt-iron**
catalyst under mild conditions)

RN 504-63-2 HCA

CN 1,3-Propanediol (CA INDEX NAME)



IC ICM B01J031-16

ICS B01J031-20; B01J031-28; C07C029-16

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
Section cross-reference(s): 35, 67

ST **cobalt iron catalyst** propanediol prodn
ethylene oxide **hydroformylation** syngas

IT Heterocyclic compounds

(nitrogen, **catalyst** ligands; one-step prodn. of 1,
3-propanediol from ethylene oxide and syngas with an optionally
ligated **cobalt-iron catalyst** under
mild conditions)

IT **Hydroformylation catalysts**

Synthesis gas

(one-step prodn. of 1, 3-propanediol from ethylene oxide and
syngas with an optionally ligated **cobalt-iron**
catalyst under mild conditions)

IT Ligands

(one-step prodn. of 1, 3-propanediol from ethylene oxide and syngas with an optionally ligated cobalt-iron catalyst under mild conditions)

IT 366-18-7, 2,2'-Dipyridyl 3682-35-7, 2,4,6-Tripyridyl-s-triazine
6411-21-8, 1,2-Bis(diethylphosphino)ethane 70826-08-3
143970-62-1 170284-98-7
(catalyst ligand; one-step prodn. of 1, 3-propanediol from ethylene oxide and syngas with an optionally ligated cobalt-iron catalyst under mild conditions)

IT 132-16-1, Iron(II) phthalocyanine 10210-68-1,
Dicobalt octacarbonyl 13463-40-6, Iron pentacarbonyl 41697-90-9
(catalyst precursor; one-step prodn. of 1, 3-propanediol from ethylene oxide and syngas with an optionally ligated cobalt-iron catalyst under mild conditions)

IT 112-18-5, N,N-Dimethyldodecylamine
(catalyst promoter; one-step prodn. of 1, 3-propanediol from ethylene oxide and syngas with an optionally ligated cobalt-iron catalyst under mild conditions)

IT 75-07-0P, Acetaldehyde, preparation 107-02-8P, Acrolein, preparation 2134-29-4P, 3-Hydroxypropanal
(one-step prodn. of 1, 3-propanediol from ethylene oxide and syngas with an optionally ligated cobalt-iron catalyst under mild conditions)

IT 7439-89-6, Iron, uses 7440-48-4, Cobalt, uses 15243-33-1, Triruthenium dodecacarbonyl
(one-step prodn. of 1, 3-propanediol from ethylene oxide and syngas with an optionally ligated cobalt-iron catalyst under mild conditions)

IT 504-63-2P, 1,3-Propanediol
(one-step prodn. of 1, 3-propanediol from ethylene oxide and syngas with an optionally ligated cobalt-iron catalyst under mild conditions)

IT 75-21-8, Ethylene oxide, reactions 630-08-0, Carbon monoxide, reactions 1333-74-0, Hydrogen, reactions
(one-step prodn. of 1, 3-propanediol from ethylene oxide and syngas with an optionally ligated cobalt-iron catalyst under mild conditions)

IT 108-88-3, Toluene, uses
(solvent, mixt. with chlorobenzene; one-step prodn. of 1, 3-propanediol from ethylene oxide and syngas with an optionally ligated cobalt-iron catalyst under mild conditions)

IT 108-90-7, Chlorobenzene, uses

(solvent, mixt. with toluene; one-step prodn. of 1, 3-propanediol from ethylene oxide and syngas with an optionally ligated **cobalt-iron catalyst** under mild conditions)

IT 646-06-0, 1,3-Dioxolane

(solvent; one-step prodn. of 1, 3-propanediol from ethylene oxide and syngas with an optionally ligated **cobalt-iron catalyst** under mild conditions)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L111 ANSWER 2 OF 19 HCA COPYRIGHT 2008 ACS on STN

AN 136:217172 HCA Full-text

TI Process for the production of styrene compound, and styrene compound free from biphenyl

IN Ishikawa, Shin-ichi; Eguchi, Hisao

PA Tosoh Corporation, Japan

SO U.S. Pat. Appl. Publ., 10 pp., Cont.-in-part of U.S. Ser. No. 238,585.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	US 20020026084	A1	20020228	US 2001-923347	20010808
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	US 6472567	B2	20021029		
	US 6479709	B1	20021112	US 1999-238585	19990128
				<--	

PRAI	JP 1998-18681	A	19980130	<--
	JP 1998-165389	A	19980612	<--
	JP 1998-209488	A	19980724	<--
	JP 1998-209489	A	19980724	<--
	US 1999-238585	A2	19990128	<--

OS MARPAT 136:217172

AB A process for the prodn. of a styrene compd. is provided. The process comprises reacting a Grignard reagent prepd. from a tertiary butoxyphenyl halide with a vinyl halide in the presence of a **catalyst**, wherein the **catalyst** is at least one member selected from the group consisting of manganese **catalyst**, iron **catalyst**, cobalt **catalyst** and rhodium **catalyst**. The process overcomes the problems

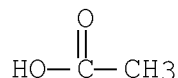
involved in the prior art, and is economical and safe. The styrene compd. by the process is free from biphenyl. Thus, 10 mL THF, 1.34 g metallic magnesium, 11.46 g p-tert-butoxybromobenzene in 20 mL THF were refluxed to give a Grignard reagent, and 0.05 g manganese(II) chloride tetrahydrate and 3.44 g vinyl chloride were added to give a p-tert-butoxystyrene.

IT 6147-53-1, Cobalt(II) acetate tetrahydrate
18078-25-6 106245-43-6

(catalyst; process for prodn. of styrene compd., and
styrene compd. free from biphenyl)

RN 6147-53-1 HCA

CN Acetic acid, cobalt(2+) salt, tetrahydrate (8CI, 9CI) (CA INDEX
NAME)

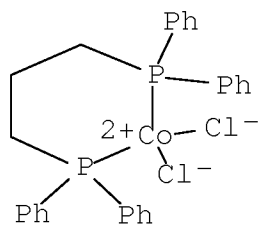


● 1/2 Co(II)

● 2 H₂O

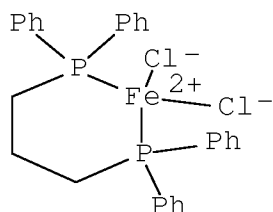
RN 18078-25-6 HCA

CN Cobalt, dichloro[1,3-propanediylbis[diphenylphosphine-κP]]-,
(T-4)- (9CI) (CA INDEX NAME)



RN 106245-43-6 HCA

CN Iron, dichloro[1,3-propanediylbis[diphenylphosphine-κP]]-,
(T-4)- (9CI) (CA INDEX NAME)



IC ICM C07C043-263
 INCL 568630000
 CC 35-2 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 25
 ST styrene deriv prepn safe grignard reaction **catalyst**
 IT Grignard reaction **catalysts**
 (process for prodn. of styrene compd., and styrene compd. free
 from biphenyl)
 IT 6147-53-1, Cobalt(II) acetate tetrahydrate 6156-78-1,
 Manganese(II) acetate tetrahydrate 7646-79-9, Cobalt(II) chloride,
 uses 7705-08-0, Iron(III) chloride, uses 13446-03-2,
 Manganese(II) bromide 13446-34-9, Manganese(II) chloride
 tetrahydrate 13478-10-9, Iron(II) chloride tetrahydrate
 13569-65-8, Rhodium(III) chloride trihydrate 18078-25-6
 19543-98-7, Dichlorobis(triphenylphosphine)iron 20049-61-0
 32425-36-8, (2,2'-Bipyridine)dichloroiron 106245-43-6
 236387-29-4
 (**catalyst**; process for prodn. of styrene compd., and
 styrene compd. free from biphenyl)

L111 ANSWER 3 OF 19 HCA COPYRIGHT 2008 ACS on STN
 AN 131:338886 HCA Full-text
 TI Metal-fluorinated and metal-perfluorinated complexes as
catalysts and extractants for multiphase systems
 IN Horvath, Istvan Tamas; Rabai, Jozsef
 PA Exxon Research and Engineering Co., USA
 SO U.S., 8 pp., Cont.-in-part of U.S. Ser. No. 502,339, abandoned.
 CODEN: USXXAM
 DT Patent
 LA English
 FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	
PI	US 5981422	A	19991109	US 1997-918828	199708 26

US 5463082

A

19951031

US 1993-88706

199307
08

PRAI US 1993-88706 A3 19930708 <--

US 1995-502339 B2 19950714 <--

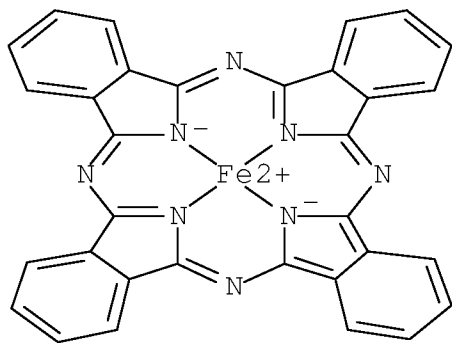
OS MARPAT 131:338886

AB Stoichiometric and **catalytic** chem. operations are carried out in soln. using fluorine-contg. multiphase systems contg. compds. selected from: (1) a (perfluoroalkyl)phthalocyanine metal complex, in which the metal is chosen from Ru, Fe, Co, Os, Rh, and Ir, and (2) metal complexes of (perfluoroalkyl)-5,10,15,20-tetrakis(pentafluorophenyl)porphyrin and metal complexes selected from $\text{ClM}[\text{P}[(\text{CH}_2)_n(\text{CF}_2)\text{CF}_3]_3]_3$, $\text{ClM}[\text{P}[\text{O}(\text{CH}_2)_n(\text{CF}_2)\text{mCF}_3]_3]_3$, $\text{HM}(\text{CO})_x[\text{P}[(\text{CH}_2)_n(\text{CF}_2)\text{mCF}_3]_3]_4-x$, and $\text{HM}(\text{CO})_x[\text{P}[\text{O}(\text{CH}_2)_n(\text{CF}_2)\text{mCF}_3]_3]_4-x$, in which M = Co, Rh, Fe, Os, and Ir; x = 1-3; $(\text{CH}_2)_n$ may be present or absent (when present, n = 1-5); and m = 4-20. The complexes are suitable for use as oxidn. **catalysts** and **hydroformylation catalysts**, and as extractants for extrn. of metals from nonfluorinated solvents.

IT 132-16-1DP, Iron(II) phthalocyanine, perfluoroalkylated
3317-67-7DP, Cobalt(II) phthalocyanine, perfluoroalkylated
(**catalysts**; metal-fluorinated and metal-perfluorinated complexes as **catalysts** and extractants for multiphase systems)

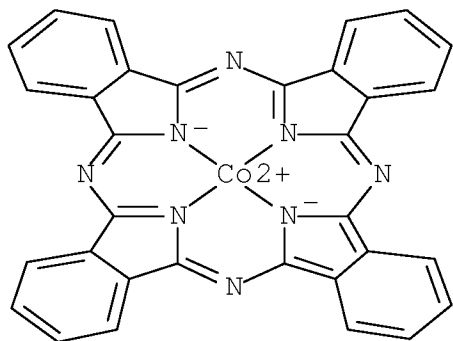
RN 132-16-1 HCA

CN Iron, [29H,31H-phthalocyaninato(2-)- $\kappa\text{N}29$, $\kappa\text{N}30$, $\kappa\text{N}31$, $\kappa\text{N}32$]-, (SP-4-1)- (CA INDEX NAME)



RN 3317-67-7 HCA

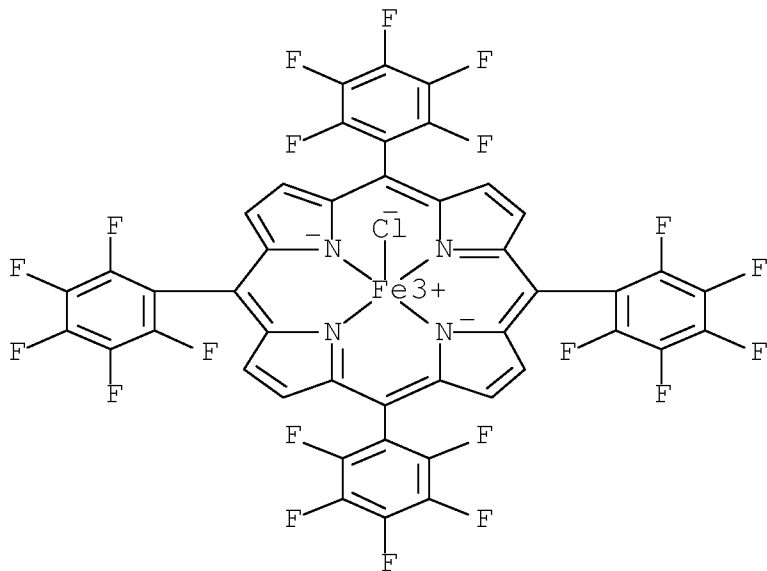
CN Cobalt, [29H,31H-phthalocyaninato(2-)- $\kappa\text{N}29$, $\kappa\text{N}30$, $\kappa\text{N}31$, $\kappa\text{N}32$]-, (SP-4-1)- (CA INDEX NAME)



IT 36965-71-6D, perfluoroalkylated
 (catalysts; prepn. of metal-fluorinated and
 metal-perfluorinated complexes as **catalysts** and
 extractants for multiphase systems)

RN 36965-71-6 HCA

CN Iron, chloro[5,10,15,20-tetrakis(pentafluorophenyl)-21H,23H-
 porphinato(2-)-κN21,κN22,κN23,κN24]-,
 (SP-5-12)- (CA INDEX NAME)

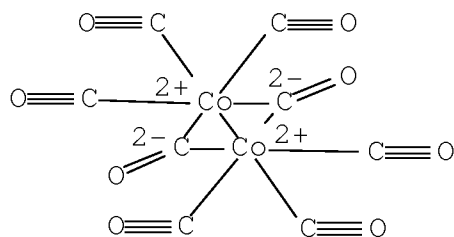


IT 10210-68-1DP, Dicobalt octacarbonyl, complexes with
 tris(tridecafluorooctyl)phosphine
 (hydroformylation **catalysts**;

metal-(fluoroalkyl)phosphine complexes as
hydroformylation catalysts for)

RN 10210-68-1 HCA

CN Cobalt, di- μ -carbonylhexacarbonyldi-, (Co-Co) (CA INDEX NAME)



IC ICM B01J031-18

ICS C07B047-00

INCL 502163000

CC 48-8 (Unit Operations and Processes)

Section cross-reference(s): 28, 29, 45, 67

ST fluorinated compd **catalyst** extractant multiphase system;

perfluorinated compd **catalyst** extractant multiphase

system; oxidn **catalyst** multiphase fluorinated compd;

hydroformylation catalyst multiphase fluorinated

compd; perfluoroalkyl phthalocyanine metal oxidn **catalyst**

IT Extractants

(metal-fluorinated and metal-perfluorinated complexes as
catalysts and extractants for multiphase systems)

IT Solvent extraction

(metal; metal-fluorinated and metal-perfluorinated complexes as
catalysts and extractants for multiphase systems)

IT Phase transfer **catalysts**

Phase transfer **catalysts**

(oxidn.; metal-fluorinated and metal-perfluorinated complexes as
catalysts and extractants for multiphase systems)

IT Alkylation

(perfluoroalkylation; in prepn. of metal-fluorinated and
metal-perfluorinated complexes as **catalysts** and
extractants for multiphase systems)

IT Oxidation **catalysts**

Oxidation **catalysts**

(phase transfer; metal-fluorinated and metal-perfluorinated
complexes as **catalysts** and extractants for multiphase
systems)

IT **Hydroformylation catalysts**

(phase-transfer; metal-fluorinated and metal-perfluorinated

- complexes as **catalysts** and extractants for multiphase systems)
- IT 132-16-1DP, Iron(II) phthalocyanine, perfluoroalkylated
 355-43-1P, Perfluorohexyl iodide 423-62-1DP, Perfluorodecyl
 iodide, reaction products with metal phthalocyanine complexes
 507-63-1DP, Perfluorooctyl iodide, reaction products with metal
 phthalocyanine complexes 3317-67-7DP, Cobalt(II)
 phthalocyanine, perfluoroalkylated 14055-02-8DP, Nickel(II)
 phthalocyanine, perfluoroalkylated
 (**catalysts**; metal-fluorinated and metal-perfluorinated
 complexes as **catalysts** and extractants for multiphase
 systems)
- IT 36965-71-6D, perfluoroalkylated
 (**catalysts**; prepn. of metal-fluorinated and
 metal-perfluorinated complexes as **catalysts** and
 extractants for multiphase systems)
- IT 822-67-3, 2-Cyclohexenol 930-68-7, 2-Cyclohexenone 6705-49-3,
 2,3-Epoxycyclohexanone
 (formation of, in cyclohexene oxidn.; metal-fluorinated and
 metal-perfluorinated complexes as **catalysts** and
 extractants for multiphase systems)
- IT 127-63-9, Diphenyl sulfone
 (formation of, in di-Ph sulfide oxidn.; metal-fluorinated and
 metal-perfluorinated complexes as **catalysts** and
 extractants for multiphase systems)
- IT 1016-05-3, Dibenzothiophene sulfone
 (formation of, in dibenzothiophene oxidn.; metal-fluorinated and
 metal-perfluorinated complexes as **catalysts** and
 extractants for multiphase systems)
- IT 7786-29-0P, Octanal, 2-methyl- 19009-56-4P, Decanal, 2-methyl-
 35127-50-5P, Isononanal
 (formation of; metal-(fluoroalkyl)phosphine complexes as
hydroformylation catalysts for)
- IT 124-19-6P, Nonanal
 (formation of; metal-(fluoroalkyl)phosphine complexes as
hydroformylation catalysts for)
- IT 10210-68-1DP, Dicobalt octacarbonyl, complexes with
 tris(tridecafluorooctyl)phosphine 14874-82-9DP, complexes with
 tris(tridecafluorooctyl)phosphine
 (**hydroformylation catalysts**;
 metal-(fluoroalkyl)phosphine complexes as
hydroformylation catalysts for)
- IT 111-66-0, 1-Octene 872-05-9, 1-Decene
 (**hydroformylation** of; metal-(fluoroalkyl)phosphine
 complexes as **hydroformylation catalysts** for)
- IT 110-83-8, Cyclohexene, reactions 132-65-0, Dibenzothiophene
 139-66-2, Diphenyl sulfide

(oxidn. of; metal-fluorinated and metal-perfluorinated complexes as **catalysts** and extractants for multiphase systems)

IT 110-54-3P, n-Hexane, processes 355-02-2P,
Perfluoromethylcyclohexane 10049-07-7P, Rhodium trichloride
(selective extn. of; metal-fluorinated and metal-perfluorinated complexes as **catalysts** and extractants for multiphase systems)

IT 103249-38-3DP, rhodium carbonyl complexes 103249-38-3P
114469-96-4P 149790-22-7P 165805-62-9P
(synthesis of; in prepn. of metal-fluorinated and metal-perfluorinated complexes as **catalysts** and extractants for multiphase systems)

IT 112-44-7P, n-Undecanal
(synthesis of; metal-(fluoroalkyl)phosphine complexes as **hydroformylation catalysts** for)

RE.CNT 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L111 ANSWER 4 OF 19 HCA COPYRIGHT 2008 ACS on STN

AN 131:144959 HCA Full-text

TI Method for preparing styrene derivatives

IN Ishikawa, Shinichi; Eguchi, Hisao

PA Tosoh Corp., Japan

SO Ger. Offen., 10 pp.

CODEN: GWXXBX

DT Patent

LA German

FAN.CNT 2

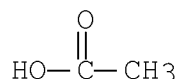
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	DE 19903925	A1	19990805	DE 1999-19903925	19990201
				<--	
	JP 2000239192	A	20000905	JP 1999-21787	19990129
				<--	
PRAI	JP 1998-18681	A	19980130	<--	
	JP 1998-165389	A	19980612	<--	
	JP 1998-209488	A	19980724	<--	
	JP 1998-209489	A	19980724	<--	
	JP 1998-357438	A	19981216	<--	
OS	MARPAT 131:144959				
AB	The use of manganese, iron, cobalt and rhodium catalysts in the manuf. of styrene derivs. by the reaction of a vinyl halide with a				

Grignard reagent prepd. from an arom. halogen compd. produces higher yields with lower costs than conventional processes. Thus, a soln. of 11.46 g p-tert-butoxybromobenzene in 20 mL THF was added dropwise to a THF soln. of MgI, under N. After stirring for 1 h at 40°-50°, 0.05 g MnCL2.4H2O was added to the reaction mixt. contg. the Grignard reagent. Then 3.44 g vinyl chloride was added in 10 min and the mixt. was stirred for 1 h at 20°-30°. The reaction mixt. was worked up to give an 80.2% yield of p-tert-butoxystyrene was obtained.

IT 6147-53-1, Cobalt acetate tetrahydrate 18078-25-6
106245-43-6
(catalyst; in manuf. of styrene derivs. from arom.
halogen compd. Grignard reagent and vinyl halide)

RN 6147-53-1 HCA

CN Acetic acid, cobalt(2+) salt, tetrahydrate (8CI, 9CI) (CA INDEX
NAME)

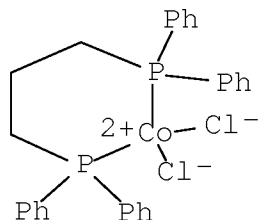


● 1/2 Co(II)

● 2 H2O

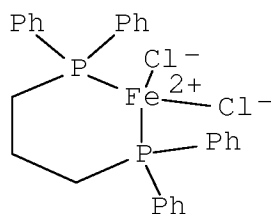
RN 18078-25-6 HCA

CN Cobalt, dichloro[1,3-propanediylbis[diphenylphosphine-κP]]-,
(T-4)- (9CI) (CA INDEX NAME)



RN 106245-43-6 HCA

CN Iron, dichloro[1,3-propanediylbis[diphenylphosphine-κP]]-,
(T-4)- (9CI) (CA INDEX NAME)



IC ICM C07B049-00
ICS C07C041-30; C07C017-269; C07C001-22; C07C043-225; C07C025-28;
C07C015-46

CC 35-2 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 25

ST styrene deriv manuf; iron **catalyst** manuf styrene deriv;
manganese **catalyst** manuf styrene deriv; cobalt
catalyst manuf styrene deriv; rhodium **catalyst**
manuf styrene deriv; butoxystyrene manuf

IT 6147-53-1, Cobalt acetate tetrahydrate 6156-78-1,
Manganese acetate tetrahydrate 7646-79-9, Cobalt chloride (CoCl₂),
uses 7705-08-0, Ferric chloride, uses 7758-94-3, Ferrous
chloride 13446-03-2, Manganese bromide 13446-34-9, Manganese
chloride tetrahydrate 13446-69-0, Rhodium trichloride tetrahydrate
13478-10-9, Ferrous chloride tetrahydrate 18078-25-6
19543-98-7, Iron dichlorobis(triphenylphosphine) 20049-61-0, Iron
bromide (FeBr₂) tetrahydrate 32425-36-8 106245-43-6
236387-29-4
(**catalyst**; in manuf. of styrene derivs. from arom.
halogen compd. Grignard reagent and vinyl halide)

IT 622-97-9P, p-Methylstyrene 1073-67-2P 95418-58-9P,
p-tert-Butoxystyrene 105612-79-1P
(manuf. of styrene derivs. from arom. halogen compd. Grignard
reagent and vinyl halide in presence of **iron**,
manganese, **cobalt** and rhodium **catalysts**)

IT 75-01-4, reactions 106-38-7, p-Bromotoluene 106-39-8,
p-Bromochlorobenzene 60876-70-2, p-tert-Butoxybromobenzene
99376-83-7
(reactant; manuf. of styrene derivs. from arom. halogen compd.
Grignard reagent and vinyl halide in presence of **iron**,
manganese, **cobalt** and rhodium **catalysts**)

L111 ANSWER 5 OF 19 HCA COPYRIGHT 2008 ACS on STN
AN 129:189670 HCA Full-text
OREF 129:38537a,38540a
TI Process for the preparation of acylaminocarboxylic acids by

carboxymethylation

IN Stern, Michael K.; Johnson, Todd J.; Rogers, Michael D.; Levine,
Jeffrey A.; Morgenstern, David A.; Fobian, Yvette M.

PA Monsanto Company, USA

SO PCT Int. Appl., 160 pp.

CODEN: PIXXD2

DT Patent

LA English

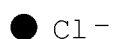
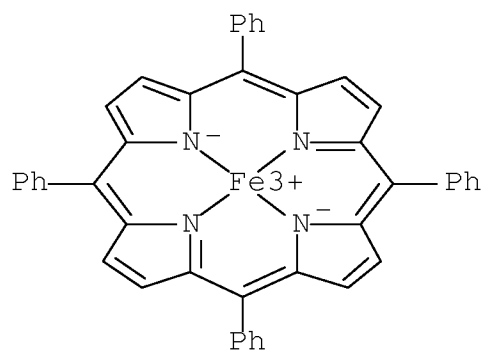
FAN.CNT 4

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	WO 9835930	A1	19980820	WO 1998-US2882	199802 12
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	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW				
	RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	CA 2271201	A1	19980820	CA 1998-2271201	199802 12
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	AU 9863264	A	19980908	AU 1998-63264	199802 12
				<--	
	AU 740288	B2	20011101		
	CA 2509953	A1	19990812	CA 1998-2509953	199802 12
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	CA 2509953	C	20080617		
	EP 973719	A1	20000126	EP 1998-907465	199802 12
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	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	NZ 335654	A	20000623	NZ 1998-335654	199802 12

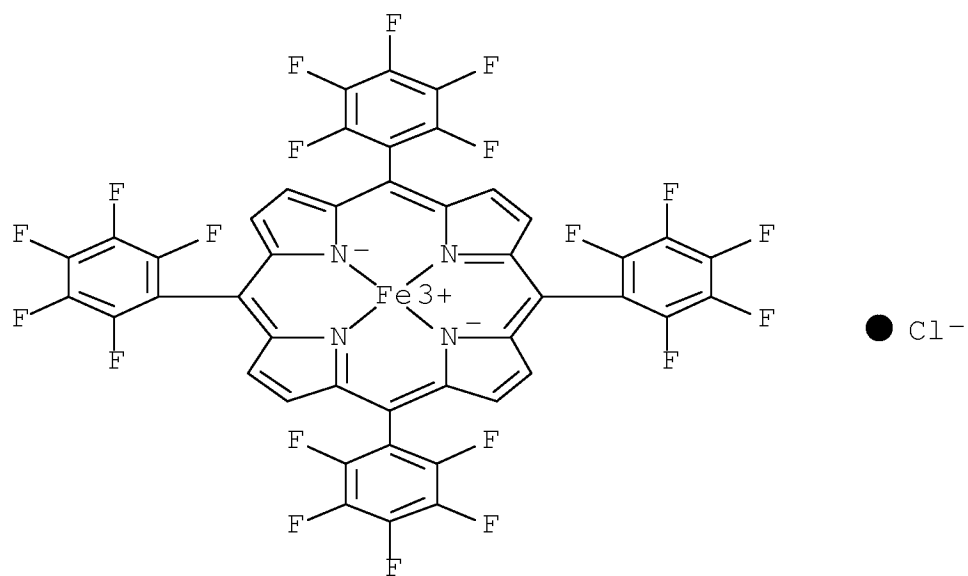
BR 9806266	A	20001017	BR 1998-6266	199802 12
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HU 2000002032	A2	20001028	HU 2000-2032	199802 12
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HU 2000002032	A3	20011228		
HU 2000002391	A2	20001128	HU 2000-2391	199802 12
			<--	
HU 2000002391	A3	20030828		
US 6153753	A	20001128	US 1998-22967	199802 12
			<--	
NZ 335649	A	20010126	NZ 1998-335649	199802 12
			<--	
JP 2001511810	T	20010814	JP 1998-535970	199802 12
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AT 325799	T	20060615	AT 1998-906441	199802 12
			<--	
EP 1716923	A1	20061102	EP 2006-6198	199802 12
			<--	
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,				
PT, IE, FI				
ES 2264196	T3	20061216	ES 1998-906441	199802 12
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ZA 9801220	A	19980817	ZA 1998-1220	199802 13
			<--	
TW 464537	B	20011121	TW 1998-87102054	199802

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NO 9902245	A	19990812	NO 1999-2245	
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IN 188474	A1	20020928	IN 1999-MA536	
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IN 188475	A1	20020928	IN 1999-MA537	
				19990507
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US 6265605	B1	20010724	US 2000-499699	
				20000207
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AU 728830	B2	20010118	AU 2000-17567	
				20000217
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US 20020002281	A1	20020103	US 2001-871829	
				20010601
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IN 2001MA00616	A	20050304	IN 2001-MA616	
				20010727
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IN 2001MA00617	A	20050304	IN 2001-MA617	
				20010727
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US 20030088122	A1	20030508	US 2002-151650	
				20020520
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AU 2003200725	A1	20030501	AU 2003-200725	
				20030225
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AU 2003200725	B2	20050721		
US 20030225298	A1	20031204	US 2003-408515	
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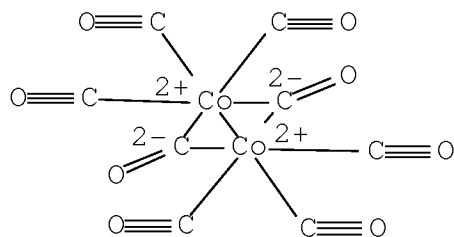
	US 6759549	B2	20040706	
PRAI	US 1997-37775P	P	19970213	<--
	AU 1998-61663	A	19980212	<--
	CA 1998-2275866	A3	19980212	<--
	EP 1998-906441	A	19980212	<--
	US 1998-22967	A	19980212	<--
	WO 1998-US2882	W	19980212	<--
	AU 1999-38959	A3	19990510	<--
	US 2000-499699	A3	20000207	<--
	US 2001-871829	A3	20010601	<--
	US 2002-151650	B1	20020520	
OS	CASREACT 129:189670; MARPAT 129:189670			
AB	<p>A process for the prepn. of N-acylamino carboxylic acids by carboxymethylation reactions is described. In these reactions, a reaction mixt. is formed which contains a base pair, carbon monoxide, hydrogen, and an aldehyde with the base pair comprising a carbamoyl compd. and a carboxymethylation catalyst precursor. In a preferred embodiment, the carbamoyl compd. and aldehyde are selected to yield an N-acylamino carboxylic acid which is readily converted to N-(phosphonomethyl)glycine, or a salt or ester thereof. Addnl., a process for oxidative dealkylation of N-alkylglyphosate derivs. with oxygen in the presence of platinum and a catalyst modifier is described. Thus, 11.8 g of acetamide, 13.6 g of 95% paraformaldehyde, 12.9 g water, 1.8 g 37% HCl, 90 mL DME, and 4.1 g Co₂(CO)₈ was added to a 300 mL autoclave and pressurized to 1500 psi with CO at 25°. The mixt. was heated to 110° for 30 min, and HPLC anal. gave 87% of N-acetylaminodiacetic acid along with 0.5% iminodiacetic acid and 4.0% N-acetylglycine. Many other reactions using different carbonyl compds., different cobalt catalysts, and different reaction conditions are given.</p>			
IT	170645-84-8 211934-69-9			
	(prepn. of aminocarboxylic acids by carboxymethylation)			
RN	170645-84-8 HCA			
CN	Iron(1+), [5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-κN21,κN22,κN23,κN24]-, chloride, (SP-4-1)-(9CI) (CA INDEX NAME)			



RN 211934-69-9 HCA
 CN Iron(1+), [5,10,15,20-tetrakis(pentafluorophenyl)-21H,23H-porphinato(2-)-κN21,κN22,κN23,κN24]-, chloride (1:1), (SP-4-1)- (CA INDEX NAME)



IT 10210-68-1P, Dicobalt octacarbonyl
 (prepn. of aminocarboxylic acids by carboxymethylation)
 RN 10210-68-1 HCA
 CN Cobalt, di-μ-carbonylhexasdicarbonyldi-, (Co-Co) (CA INDEX NAME)



IC ICM C07C062-00
 ICS C07C061-09; C07C061-10; C07C061-24; C07C233-00; C07C235-00;
 C07C237-00; C07D241-18; C07D251-14; C07F009-22; C07F009-28

CC 34-2 (Amino Acids, Peptides, and Proteins)
 Section cross-reference(s): 5, 24

ST acylaminocarboxylic acid prepn carboxymethylation process; carbamoyl
 compd aldehyde carboxymethylation process; glyphosate prepn process;
 oxidative dealkylation process platinum catalyst

IT Methylation catalysts
 (carboxymethylation catalysts; prepn. of
 aminocarboxylic acids by carboxymethylation in presence of cobalt
 catalysts)

IT Carboxymethylation
 (catalysts; prepn. of aminocarboxylic acids by
 carboxymethylation in presence of cobalt catalysts)

IT Dealkylation
 Dealkylation catalysts
 (oxidative; oxidative dealkylation of alkylglyphosate derivs.
 with platinum and catalyst modifiers)

IT 102-54-5, Ferrocene 345-92-6, 4,4'-Difluorobenzophenone
 519-73-3, Triphenylmethane 524-38-9, N-Hydroxyphthalimide
 2564-83-2, TEMPO 4316-58-9, Tris(4-bromophenyl)amine 7061-81-6
 7440-06-4, Platinum, uses 14172-92-0 14323-06-9,
 Rutheniumtris(2,2'-bipyridine) dichloride 22541-53-3, uses
 170645-84-8 211934-69-9
 (prepn. of aminocarboxylic acids by carboxymethylation)

IT 10210-68-1P, Dicobalt octacarbonyl
 (prepn. of aminocarboxylic acids by carboxymethylation)

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L111 ANSWER 6 OF 19 HCA COPYRIGHT 2008 ACS on STN

AN 123:87349 HCA Full-text

OREF 123:15549a,15552a

TI Fluorous multiphase catalyst or reagent systems for environmentally
 friendly oxidation or hydroformylation or extraction

processes
 IN Horvath, Istvan Tamas; Rabai, Jozsef
 PA Exxon Research and Engineering Co., USA
 SO Eur. Pat. Appl., 11 pp.
 CODEN: EPXXDW
 DT Patent
 LA English
 FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	EP 633062	A1	19950111	EP 1994-304877	19940704
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	EP 633062	B1	19990908		
	R: DE, FR, GB, IT, NL				
	US 5463082	A	19951031	US 1993-88706	19930708
				<--	
	CA 2126778	A1	19950109	CA 1994-2126778	19940627
				<--	
	AU 9467313	A	19950119	AU 1994-67313	19940706
				<--	
	AU 673743	B2	19961121		
	NO 9402563	A	19950109	NO 1994-2563	19940707
				<--	
	NO 308343	B1	20000904		
PRAI	US 1993-88706	A	19930708	<--	

AB Stoichiometric and catalytic chem. transformations may be carried out in soln. using novel fluorous multiphase systems (FMS). Fluorous denotes a C-F bond-rich org. mol. derived by replacing H bonded to C with F. The FMS consists of a fluorous phase contg. a fluorous solvent, typically a fluorocarbon or a fluorohydrocarbon (with or without substituent groups), and a reagent or a catalyst contg. a sufficient no. of fluorous moieties to render it preferentially sol. in the fluorous solvent and located at the interface of the fluorous and nonfluorous phases. The nonfluorous solvent may be any known org. or nonorg. solvent with limited or no soly. in the fluorous solvent and is effective for dissolving the reaction products (e.g.,

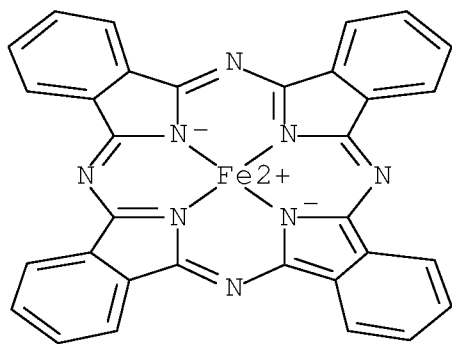
a nonfluorous solvent having a Hildebrand soly. parameter of at least about 18.0 MPa^{1/2}). The reaction can occur simultaneously in the fluorous phase and at the interface of the phases. The fluorous multiphase systems facilitate the sepn. of the FMS catalyst or spent FMS reagent, providing catalysts and reagents with high product selectivity, resulting in esp. environmentally friendly processes.

IT 132-16-1 3317-67-7, Phthalocyaninato cobalt (II)
16456-81-8

(fluorous multiphase catalyst or reagent systems for oxidn. or hydroformylation or extn.)

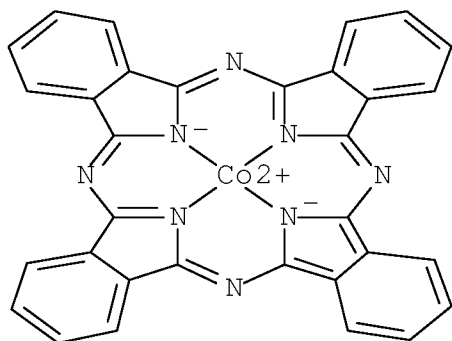
RN 132-16-1 HCA

CN Iron, [29H,31H-phthalocyaninato(2-)-κN29,κN30,κN31,κN32]-, (SP-4-1)- (CA INDEX NAME)



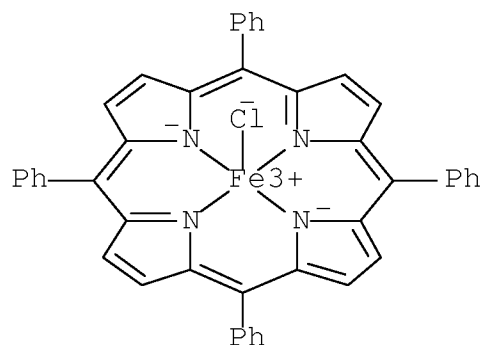
RN 3317-67-7 HCA

CN Cobalt, [29H,31H-phthalocyaninato(2-)-κN29,κN30,κN31,κN32]-, (SP-4-1)- (CA INDEX NAME)



RN 16456-81-8 HCA

CN Iron, chloro[5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-
 κN21,κN22,κN23,κN24]-, (SP-5-12)- (CA INDEX
 NAME)



IC ICM B01J031-16
 ICS B01J031-02

CC 48-8 (Unit Operations and Processes)
 Section cross-reference(s): 60, 67

ST fluorous multiphase catalyst system; oxidn fluorous multiphase
 catalyst system; **hydroformylation** fluorous multiphase
 catalyst; extn fluorous multiphase catalyst system

IT Extraction
 (fluorous multiphase catalyst or reagent systems for oxidn. or
hydroformylation or extn.)

IT **Hydroformylation** catalysts
 Oxidation catalysts
 (fluorous multiphase catalyst or reagent systems for oxidn. or
hydroformylation or extn.)

IT Perfluorocarbons
 (solvents; fluorous multiphase catalyst or reagent systems for
 oxidn. or **hydroformylation** or extn.)

IT Hydrocarbons, uses
 (fluoro, solvents; fluorous multiphase catalyst or reagent
 systems for oxidn. or **hydroformylation** or extn.)

IT 132-16-1 3317-67-7, Phthalocyaninato cobalt (II)
 14055-02-8, Phthalocyaninato nickel(II) 16456-81-8
 103249-38-3 114469-96-4 149790-22-7 165805-62-9
 (fluorous multiphase catalyst or reagent systems for oxidn. or
hydroformylation or extn.)

IT 110-83-8, Cyclohexene, reactions 132-65-0, Dibenzothiophene
 139-66-2, Diphenyl sulfide 872-05-9, 1-Decene
 (fluorous multiphase catalyst or reagent systems for oxidn. or
hydroformylation or extn.)

IT 110-54-3, n-Hexane, processes 7440-16-6, Rhodium, processes
(fluorous multiphase catalyst or reagent systems for oxidn. or
hydroformylation or extn.)

L111 ANSWER 7 OF 19 HCA COPYRIGHT 2008 ACS on STN

AN 119:84650 HCA Full-text

OREF 119:14967a,14970a

TI Oxidation of iron-subgroup metal carbonyls by organic hydroperoxides

AU Spirina, I. V.; Sergeev, S. A.; Shashkova, T. V.; Cherkasov, V. K.;
Maslennikov, V. P.

CS NII Khim., Nizhniy Novgorod, Russia

SO Zhurnal Obshchei Khimii (1992), 62(12), 2656-62

CODEN: ZOKHA4; ISSN: 0044-460X

DT Journal

LA Russian

OS CASREACT 119:84650

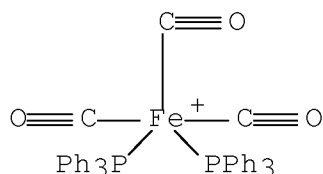
AB During oxidn. of Fe, Co, and Ni carbonyls by ROOH in hydrocarbons,
CO, CO₂, metal oxides, carbonates, and reaction products of the
peroxy fragments are formed. The 1st stages of reaction are the
transfer of an electron from Mn(CO)_m (M = Fe, Co, Ni) to the peroxide
and the appearance of metal carbonyl cation radicals. The process is
accompanied by the catalytic decompn. of ROOH and by the oxidn. the
hydrocarbon used as solvent.

IT 60243-26-7P 86469-05-8P

(formation of, by oxidn. of iron carbonyl phosphine complex by
hydroperoxide)

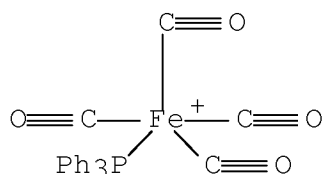
RN 60243-26-7 HCA

CN Iron(1+), tricarbonylbis(triphenylphosphine)-, (TB-5-11)- (CA INDEX
NAME)

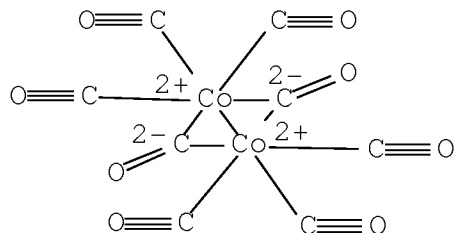


RN 86469-05-8 HCA

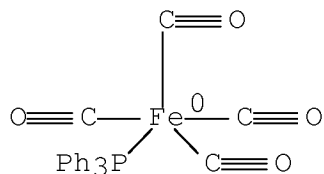
CN Iron(1+), tetracarbonyl(triphenylphosphine)- (CA INDEX NAME)



IT 10210-68-1, Dicobalt octacarbonyl 35679-07-3,
 Tetracarbonyl(triphenylphosphine)iron
 (oxidn. of, by hydroperoxides)
 RN 10210-68-1 HCA
 CN Cobalt, di- μ -carbonylhexacarbonyldi-, (Co-Co) (CA INDEX NAME)



RN 35679-07-3 HCA
 CN Iron, tetracarbonyl(triphenylphosphine)-, (TB-5-12)- (CA INDEX NAME)



CC 78-9 (Inorganic Chemicals and Reactions)
 Section cross-reference(s): 22, 67
 IT 60243-26-7P 86469-05-8P
 (formation of, by oxidn. of iron carbonyl phosphine complex by hydroperoxide)
 IT 75-91-2, tert-Butyl hydroperoxide 80-15-9, 1-Methyl-1-phenylethyl hydroperoxide
 (oxidn. by, of cobalt and iron and nickel carbonyls)
 IT 10210-68-1, Dicobalt octacarbonyl 13463-39-3, Nickel tetracarbonyl 13463-40-6, Iron pentacarbonyl 15321-51-4, Diiron nonacarbonyl 17685-52-8, Triiron dodecacarbonyl 17786-31-1, Tetracobalt dodecacarbonyl 35679-07-3,
 Tetracarbonyl(triphenylphosphine)iron

(oxidn. of, by hydroperoxides)

L111 ANSWER 8 OF 19 HCA COPYRIGHT 2008 ACS on STN

AN 118:191996 HCA Full-text

OREF 118:32993a,32996a

TI Preparation and **catalytic** properties of polymer-supported
iron-cobalt-copper and **iron-**
cobalt-gold pentametallic clusters

AU Jia, Chengguo; Wang, Yunpu; Feng, Hanyu

CS Dep. Chem., Northwest. Norm. Univ., Lanzhou, 730070, Peop. Rep.
China

SO Reactive Polymers (1992), 18(3), 203-11

CODEN: REPLEN; ISSN: 0923-1137

DT Journal

LA English

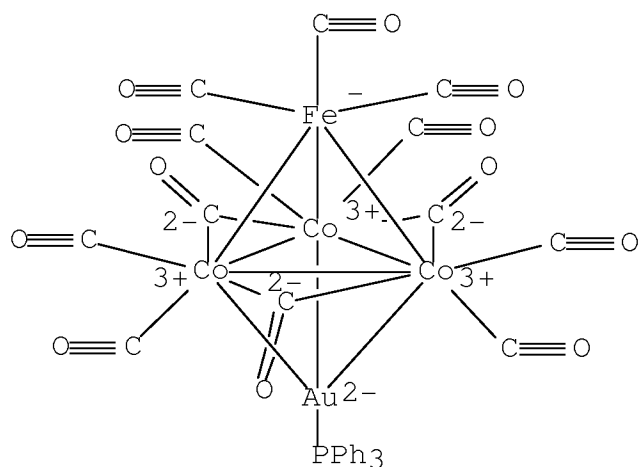
OS CASREACT 118:191996

AB Two polymer-supported metal clusters: (POL-C₆H₄CH₂-PPh₂M-
 μ_3)FeCo₃(CO)₁₂ [B, M = Cu and D, M = Au, POL = poly(styrene-
divinylbenzene)] were synthesized and their structures were studied
spectroscopically. B and D were more stable and more selective as
catalysts for the prodn. of n-heptyl aldehyde in the hydroformylation
of 1-hexene than the corresponding homogeneous cluster: A, (Ph₃PCu-
 μ_3)FeCo₂(CO)₁₂ and C, (Ph₃PAu- μ_3)FeCo₃(CO)₁₂. The polymer support
enhanced stability and **catalytic** selectivity of the clusters. C and
D, which contained gold atoms, were more active in the
hydroformylation reaction and less thermostable than A and B which
contained copper atoms. The polymer-supported clusters could be
reused in the **catalytic** reaction without serious degrdn.

IT 79829-47-3 90636-10-5 146912-29-0D,
polymer-supported 146912-30-3D, polymer-supported
(prepn. as **catalyst** for hydroformylation of hexene)

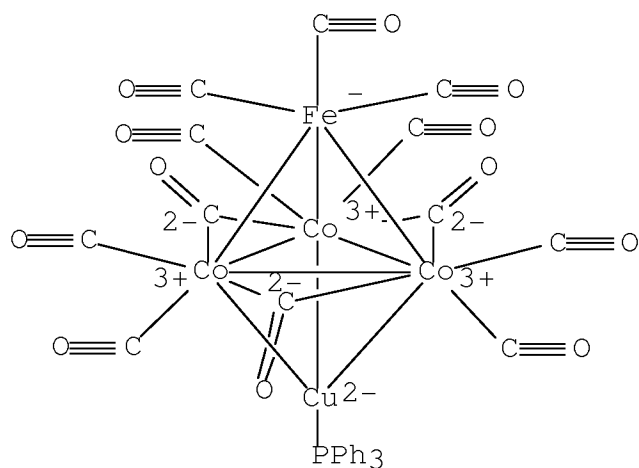
RN 79829-47-3 HCA

CN Iron, tricarbonyl(tri- μ -carbonylhexacarbonyltricobalt)[(triphenyl
phosphine)gold]-, (3Au-Co)(3Co-Co)(3Co-Fe) (9CI) (CA INDEX NAME)



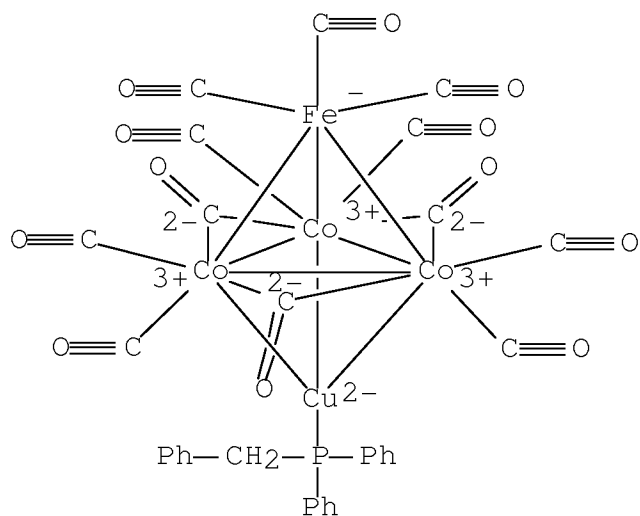
RN 90636-10-5 HCA

CN Iron, tricarbonyl(tri- μ -carbonylhexacarbonyltricobalt)[(triphenyl phosphine)copper]-, (3Co-Co)(3Co-Cu)(3Co-Fe) (9CI) (CA INDEX NAME)



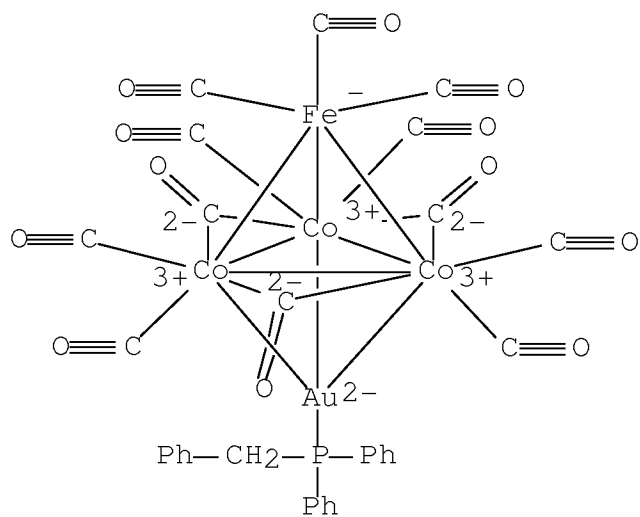
RN 146912-29-0 HCA

CN Iron, tricarbonyl[[diphenyl(phenylmethyl)phosphine]copper](tri- μ -carbonylhexacarbonyltricobalt)-, (3Co-Co)(3Co-Cu)(3Co-Fe) (9CI) (CA INDEX NAME)



RN 146912-30-3 HCA

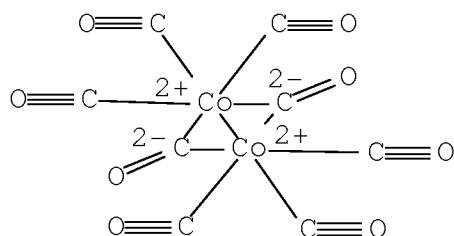
CN Iron, tricarbonyl[[diphenyl(phenylmethyl)phosphine]gold](tri- μ -carbonylhexacarbonyltricobalt)-, (3Au-Co)(3Co-Co)(3Co-Fe)(9CI) (CA INDEX NAME)



IT 10210-68-1, Dicobalt octacarbonyl
(reaction of, with iron pentacarbonyl and polymer-copper or -gold)

RN 10210-68-1 HCA

CN Cobalt, di- μ -carbonylhexacarbonyldi-, (Co-Co) (CA INDEX NAME)



- CC 29-14 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 23, 35
- ST polymer supported metal cluster **catalyst**; iron metal cluster **catalyst** polymer supported; cobalt metal cluster **catalyst** polymer supported; copper metal cluster **catalyst** polymer supported; gold metal cluster **catalyst** polymer supported; hydroformylation polymer supported metal cluster **catalyst**
- IT Cluster compounds, coordinative
(metal, polymer-supported, **catalysts**, for hydroformylation of hexene)
- IT Hydroformylation **catalysts**
(polymer-supported metal clusters, for hexene)
- IT 592-41-6, 1-Hexene, reactions
(hydroformylation of, polymer-supported cluster complexes as **catalyst** for)
- IT 79829-47-3 90636-10-5 146912-29-0D, polymer-supported 146912-30-3D, polymer-supported (prepn. as **catalyst** for hydroformylation of hexene)
- IT 111-71-7P, Heptaldehyde
(prepn. of, by hydroformylation of hexene in presence of polymer-supported cluster complex **catalysts**)
- IT 10210-68-1, Dicobalt octacarbonyl
(reaction of, with iron pentacarbonyl and polymer-copper or -gold)
- L111 ANSWER 9 OF 19 HCA COPYRIGHT 2008 ACS on STN
- AN 117:130707 HCA Full-text
- OREF 117:22683a,22686a
- TI Involvement of $\text{Co}_4(\text{CO})_8(\mu_2\text{-CO})_2(\mu_4\text{-PPh})_2$ catalysts in olefin hydroformylation
- AU Pittman, Charles U., Jr.; Hilal, Hikmat; Don, Ming Jaw; Richmond, Michael G.
- CS Dep. Chem., Mississippi State Univ., Mississippi State, MS, USA
- SO Chemical Industries (Dekker) (1992), 47(Catal. Org.

React.), 307-35

CODEN: CHEIDI; ISSN: 0737-8025

DT Journal

LA English

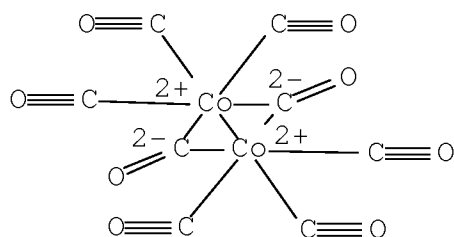
AB Homogeneous **hydroformylation** of terminal alkenes, e.g., 1-pentene or 1-octene, over $\text{Co}_4(\text{CO})_8(\mu_2\text{-CO})_2(\mu_4\text{-PPh})_2$ or $\text{Fe}_2\text{Co}_2(\text{CO})_{10}(\mu_2\text{-CO})(\mu_4\text{-PPh})_2$ was investigated. Techniques used included kinetic measurements, product selectivities, and cylindrical internal reflectance-Fourier transform IR spectroscopy. Both catalysts persist during catalysis at 130° .

IT 10210-68-1 58092-22-1 78456-88-9

(catalysts, for olefin hydroformylation)

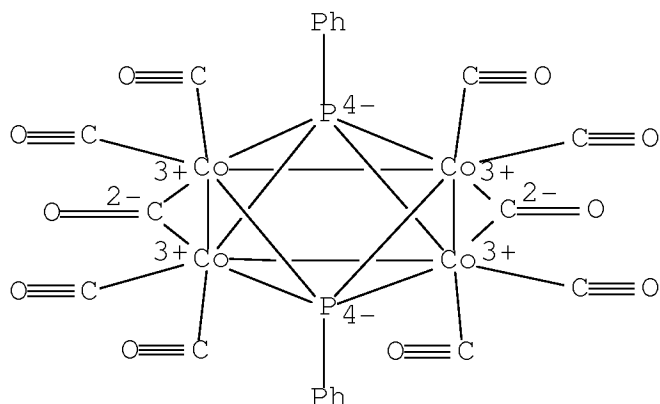
RN 10210-68-1 HCA

CN Cobalt, di- μ -carbonylhexacarbonyldi-, (Co-Co) (CA INDEX NAME)



RN 58092-22-1 HCA

CN Cobalt, di- μ -carbonyloctacarbonylbis[μ_4 -(phenylphosphoranetetrayl)]tetra-, (4Co-Co) (9CI) (CA INDEX NAME)

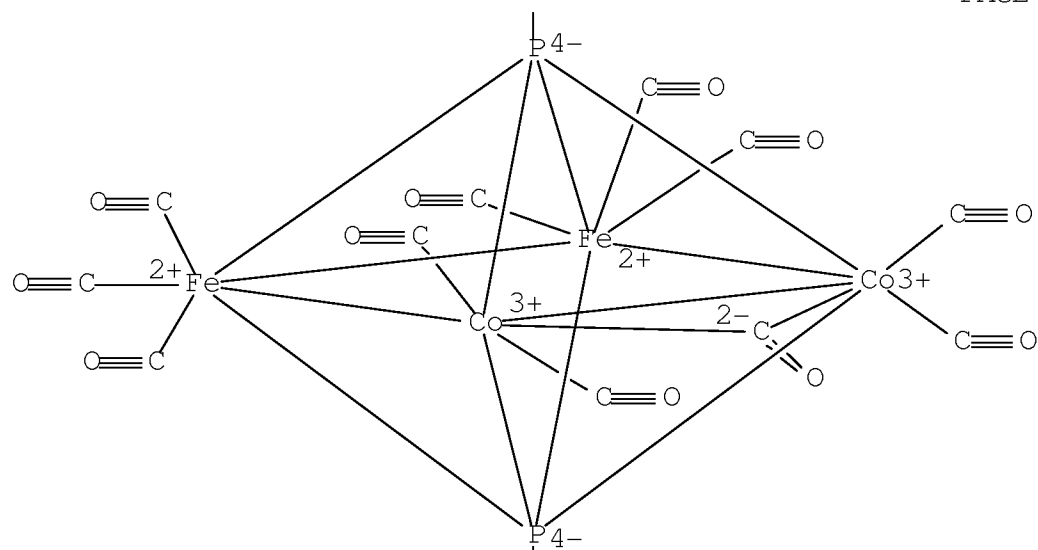


RN 78456-88-9 HCA

CN Iron, hexacarbonyl(μ -carbonyltetracarbonyldicobalt)bis[μ 4-
(phenylphosphoranetetrayl)]di-, (Co-Co)(2Co-Fe)(Fe-Fe) (9CI) (CA
INDEX NAME)

PAGE 1-A

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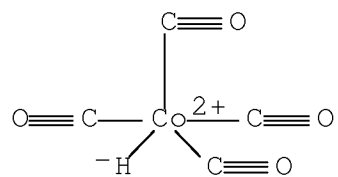


IT 12373-54-5P

(formation of, during cobalt cluster-catalyzed
hydroformylation of alkenes)

RN 12373-54-5 HCA

CN Cobalt(1+), tetracarbonylhydro- (CA INDEX NAME)



CC 22-7 (Physical Organic Chemistry)
 ST cluster compd olefin hydroformylation catalyst; cobalt
 cluster compd olefin hydroformylation
 IT Cluster compounds, coordinative
 (catalysts, for olefin hydroformylation)
 IT Hydroformylation catalysts
 (cobalt clusters, for terminal alkenes)
 IT Alkenes, reactions
 (hydroformylation of, over cobalt cluster catalysts)
 IT Hydroformylation
 Kinetics of hydroformylation
 (of alkenes over cobalt clusters)
 IT 603-35-0, Triphenylphosphine, uses
 (catalysts with cobalt complex, for olefin
 hydroformylation)
 IT 10210-68-1 58092-22-1 78456-88-9
 (catalysts, for olefin hydroformylation)
 IT 12373-54-5P
 (formation of, during cobalt cluster-catalyzed
 hydroformylation of alkenes)
 IT 109-67-1, 1-Pentene 111-66-0, 1-Octene
 (hydroformylation of, over cobalt cluster catalysts)
 IT 630-08-0
 (hydroformylation, of alkenes over cobalt clusters)

L111 ANSWER 10 OF 19 HCA COPYRIGHT 2008 ACS on STN

AN 112:45341 HCA Full-text

OREF 112:7643a,7646a

TI Photochemical and photocatalytic studies of fluorophosphine-bridged
 iron and cobalt dimers

AU Richmond, Michael G.; Pittman, Charles U., Jr.

CS Cent. Organomet. Res. Educ., Univ. North Texas, Denton, TX, 76203,
 USA

SO Journal of Molecular Catalysis (1989), 53(1), 79-103

CODEN: JMCADS; ISSN: 0304-5102

DT Journal

LA English

AB Irradn. (254, 300, 355 nm) of [MeN(PF₂)₂]₃Co₂(CO)₂ (I),
 [MeN(PF₂)₂]₃Co₂(PPh₃)₂ (II), and [MeN(PF₂)₂]₂Fe₂(CO)₅ (III) at room
 temp. in the presence of acetophenone and SiHEt₃ leads to
 photoassisted hydrosilation with moderate quantum yields (0.037,
 0.004, and 0.07 at 335 nm, resp). The quantum yields (Φ) vary
 as a function of the irradn. wavelength ($\Phi_{300} > \Phi_{254} > \Phi_{355}$) and are
 drastically reduced when the reaction is conducted in the presence of
 either CO or PPh₃. The wavelength dependence and external ligand
 quenching is consistent with dissociative CO loss from an upper
 excited state. UV spectral analyses suggest that the $\sigma \rightarrow \sigma^*$

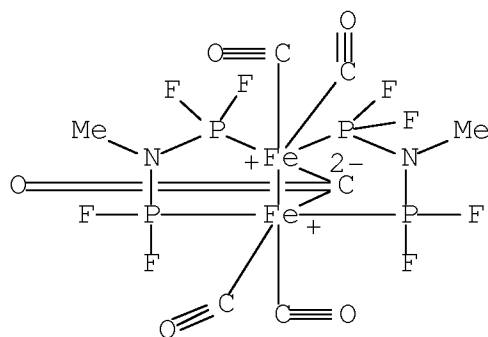
electronic transition is responsible for the obsd. quantum yield trends. Photocatalyzed 1-pentene isomerization was obsd. with I but not with II or III at 355 nm. Variable temp. studies of the photocatalyzed 1-pentene isomerization **catalyzed** by I show that a thermally active **catalytic** species is present. Photocatalyzed hydrogenation of 1-pentene was achieved with I, but only at high H pressure (.apprx.100 psi). Attempted 1-pentene hydrosilation with SiHET₃, **catalyzed** by I, led only to olefin isomerization. UV irradiation of I in the presence of SiHET₃ led to the oxidative addition of silane to one Co atom, to afford [MeN(PF₂)₂]₃Co₂(CO)H(SiCl₃). Dimer fragmentation was not obsd. with I or II due to the geometrical constraints imposed by the 3 bridging ligands.

IT 62944-85-8 64799-21-9 66632-91-5

(photochem. and photocatalytic properties of)

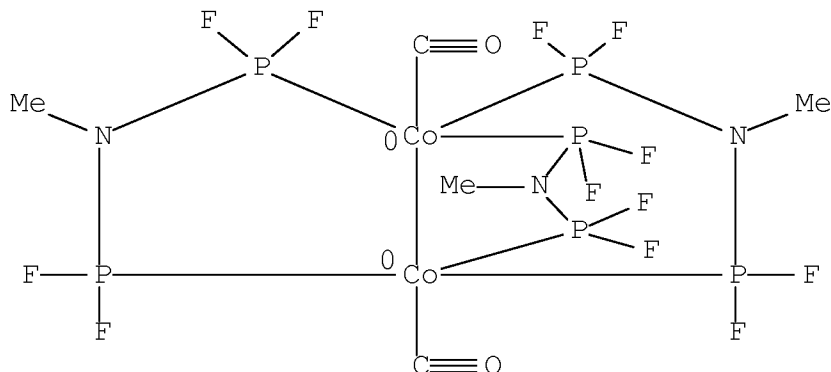
RN 62944-85-8 HCA

CN Iron, μ -carbonyltetracarbonylbis[μ -(methylimidodiphosphorous tetrafluoride-P:P')]di-, (Fe-Fe) (9CI) (CA INDEX NAME)

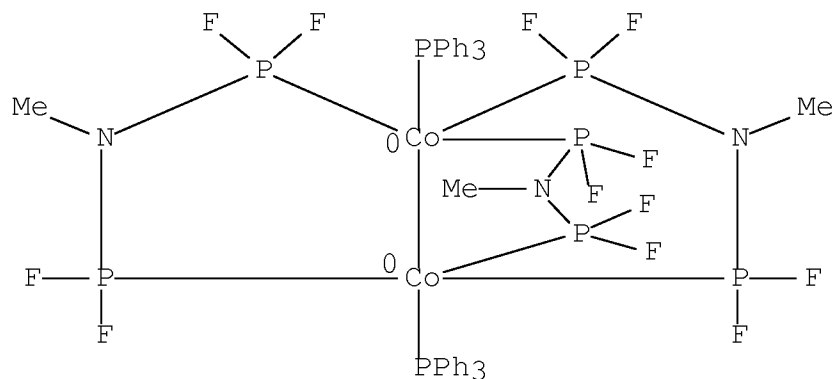


RN 64799-21-9 HCA

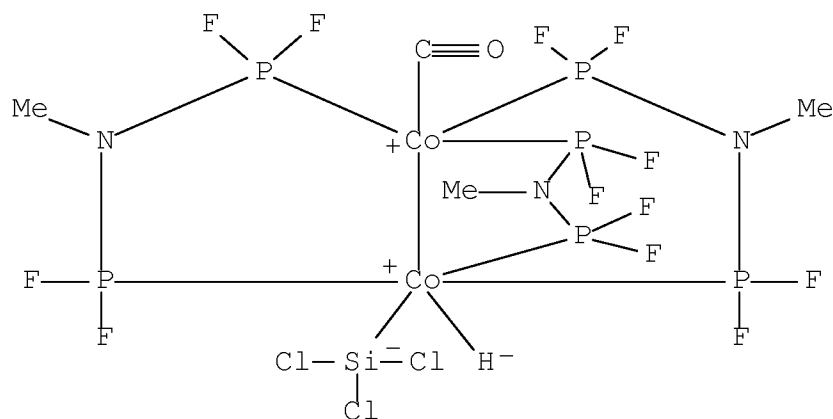
CN Cobalt, dicarbonyltris[μ -(methylimidodiphosphorous tetrafluoride-P:P')]di-, (Co-Co) (9CI) (CA INDEX NAME)



RN 66632-91-5 HCA
 CN Cobalt, tris[μ -(methylimidodiphosphorous tetrafluoride-P:P')] μ -(triphenylphosphine)di-, (Co-Co) (9CI) (CA INDEX NAME)



IT 124756-81-6P
 (photoprodn. of, by UV irradiation of fluorophosphine-bridged cobalt dimer in presence of trichlorosilane)
 RN 124756-81-6 HCA
 CN Cobalt, carbonylhydrotris[μ -(methylimidodiphosphorous tetrafluoride-P:P')](trichlorosilyl)di-, (Co-Co) (9CI) (CA INDEX NAME)



CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 67, 78

ST photoreaction fluorophosphine cobalt iron dimer;
 photocatalysis fluorophosphine bridged metal dimer

IT Photolysis catalysts
 (fluorophosphine-bridged iron and cobalt
 dimers as)

IT Photolysis
 (of fluorophosphine-bridged iron and cobalt
 dimers)

IT Catalysts and Catalysis
 (photochem., fluorophosphine-bridged iron and cobalt dimers as)

IT Hydrosilylation
 (photochem., of fluorophosphine-bridged iron and
 cobalt dimers)

IT Hydrogenation
 Isomerization
 (photochem., of pentene, fluorophosphine-bridged iron
 and cobalt dimers in)

IT 1333-74-0
 (hydrogenation, photochem., of pentene, fluorophosphine-bridged
 iron and cobalt dimers in)

IT 109-67-1, 1-Pentene
 (photocatalyzed isomerization and hydrogenation of,
 fluorophosphine-bridged iron and cobalt
 dimers in)

IT 62944-85-8 64799-21-9 66632-91-5
 (photochem. and photocatalytic properties of)

IT 617-86-7, Triethylsilane
 (photochem. and photocatalytic properties of fluorophosphine-
 bridged iron and cobalt dimers in presence
 of)

IT 98-86-2, Acetophenone, properties
 (photochem. and photocatalytic properties of fluorophosphine-
 bridged iron and cobalt dimers in presence
 of)

IT 124756-81-6P
 (photoprodn. of, by UV irradiation of fluorophosphine-bridged cobalt
 dimer in presence of trichlorosilane)

L111 ANSWER 11 OF 19 HCA COPYRIGHT 2008 ACS on STN

AN 112:6992 HCA Full-text

OREF 112:1372a

TI 1-Pentene hydroformylation using the mixed-metal cluster
 $\text{Fe}_2\text{Co}_2(\text{CO})_{11}(\mu_4\text{-PPh})_2$: cylindrical internal reflectance evidence
 for cluster catalysis

AU Richmond, Michael G.

CS Cent. Organometallic Res. Educ., Univ. North Texas, Denton, TX,

76201, USA

SO Journal of Molecular Catalysis (1989), 54(2), 199-204
 CODEN: JMCADS; ISSN: 0304-5102

DT Journal

LA English

OS CASREACT 112:6992

AB The title **catalyzes** the **hydroformylation** of 1-pentene to hexanal and 2-methylpentanal in moderate to high yield under mild batch conditions. Cluster **catalysis** is suggested based on FTIR and HPLC analyses of the final reaction solns., and in situ cylindrical internal reflectance measurements of the working **catalyst** soln. A **closo** → **nido** polyhedral transformation in the cluster is proposed as the entry point into the **catalytic** cycle.

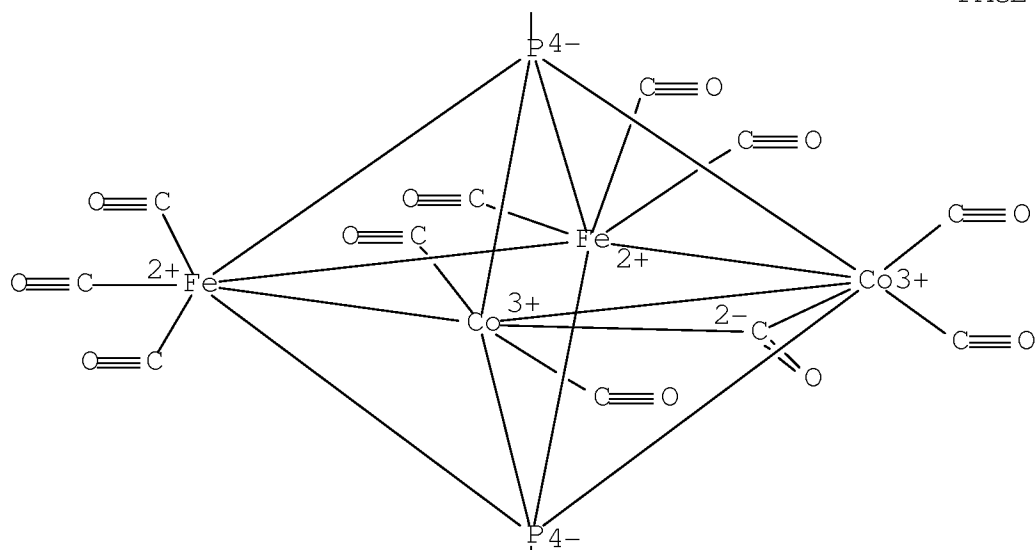
IT 78456-88-9
 (catalysts, for hydroformylation of pentene)

RN 78456-88-9 HCA

CN Iron, hexacarbonyl(μ -carbonyltetracarbonyldicobalt)bis[μ 4-(phenylphosphoranetetrayl)]di-, (Co-Co)(2Co-Fe)(Fe-Fe) (9CI) (CA INDEX NAME)

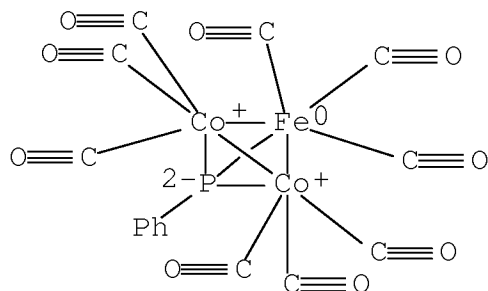
PAGE 1-A

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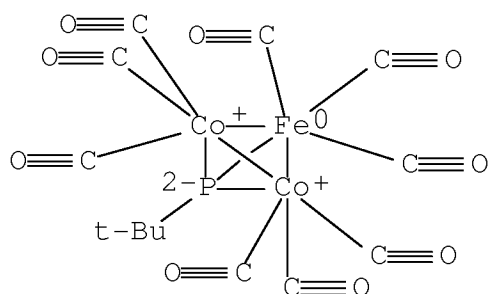


CC 22-13 (Physical Organic Chemistry)
 ST pentene hydroformylation iron cobalt
 cluster; FTIR pentene hydroformylation metal cluster
 IT **Hydroformylation catalysts**
 (cobalt-iron cluster, for pentene, FTIR study
 of)
 IT 78456-88-9
 (catalysts, for hydroformylation of pentene)
 IT 109-67-1, 1-Pentene
 (hydroformylation of, iron cobalt
 cluster catalyzed)

TI Metal exchange in clusters under redox conditions
 AU Honrath, Ute; Vahrenkamp, Heinrich
 CS Inst. Anorg. Anal. Chem., Univ. Freiburg, Freiburg, D-7800, Fed.
 Rep. Ger.
 SO Zeitschrift fuer Naturforschung, Teil B: Anorganische Chemie,
 Organische Chemie (1984), 39B(5), 559-65
 CODEN: ZNBAD2; ISSN: 0340-5087
 DT Journal
 LA German
 AB The paramagnetic clusters $\text{ECo}_3(\text{CO})_9$ ($\text{E} = \text{S}, \text{Se}, \text{PCMe}_3, \text{PPh}, \text{PNEt}_2, \text{POBu}, \text{PSEt}$), some of which were fully characterized for the first time, were treated with $\text{Na}_2\text{Fe}(\text{CO})_4$. The resulting metal exchange, which is a redox reaction, produced the clusters $\text{EFeCo}_2(\text{CO})_9$. Further treatment with $\text{Na}_2\text{Fe}(\text{CO})_4$ and acidification produced the clusters $\text{EFe}_2\text{Co}(\text{CO})_9\text{H}$, the anions of which could be isolated as PPN salts. Electron transfer catalysis with benzophenone ketyl allowed the conversion of $\text{EFeCo}_2(\text{CO})_9$ ($\text{E} = \text{S}, \text{Se}, \text{PNEt}_2$) with $\text{NaMCp}(\text{CO})_3$ ($\text{M} = \text{Mo}, \text{W}$) into the chiral clusters $\text{EFeCoM}(\text{CO})_8\text{Cp}$.
 IT 69569-55-7P 87160-20-1P
 (prepn. and exchange reaction of, with iron carbonyl dianion)
 RN 69569-55-7 HCA
 CN Iron, tricarbonyl(hexacarbonyldicobalt) [μ_3 -(phenylphosphinidene)]-, (Co-Co)(2Co-Fe) (9CI) (CA INDEX NAME)



RN 87160-20-1 HCA
 CN Iron, tricarbonyl [μ_3 -(1,1-dimethylethyl)phosphinidene]] (hexacarbonyldicobalt)-, (Co-Co)(2Co-Fe) (9CI) (CA INDEX NAME)

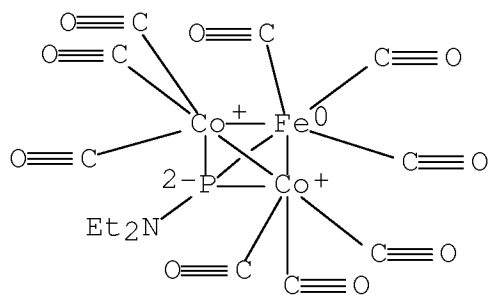


IT 88131-02-6P

(prepn. and metal exchange reactions of)

RN 88131-02-6 HCA

CN Iron, tricarbonyl[μ^3 -[N,N-diethylphosphinous amidato(2-)-P:P:P]](hexacarbonyldicobalt)-, (Co-Co)(2Co-Fe) (9CI) (CA INDEX NAME)

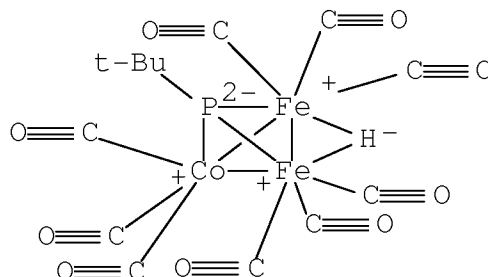


IT 87160-21-2P 91581-58-7P

(prepn. and redn. of)

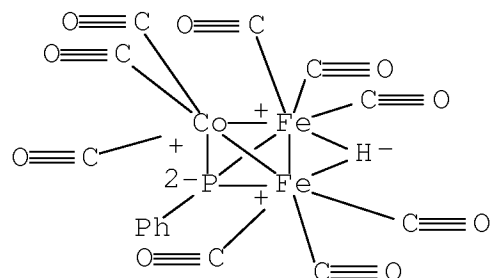
RN 87160-21-2 HCA

CN Iron, hexacarbonyl[μ^3 -[(1,1-dimethylethyl)phosphinidene]]- μ -hydro(tricarbonylcobalt)di-, (2Co-Fe)(Fe-Fe) (9CI) (CA INDEX NAME)



RN 91581-58-7 HCA

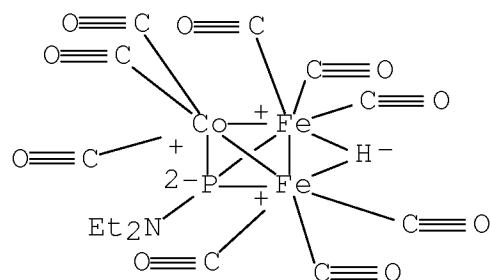
CN Iron, hexacarbonyl- μ -hydro[μ 3-(phenylphosphinidene)](tricarbonylcobalt)di-, (2Co-Fe)(Fe-Fe) (9CI) (CA INDEX NAME)



IT 91581-59-8P 91609-90-4P
(prepn. of)

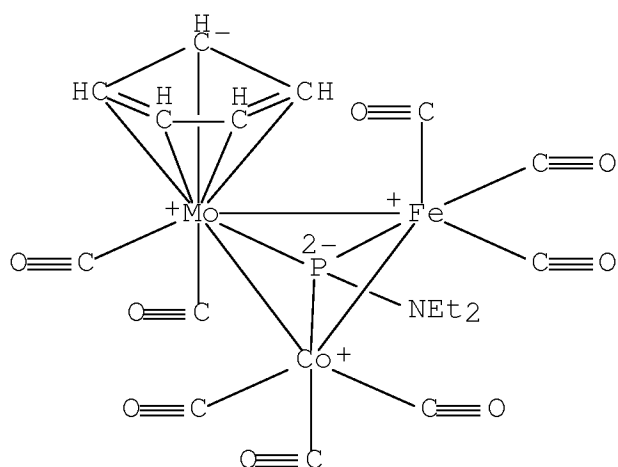
RN 91581-59-8 HCA

CN Iron, hexacarbonyl[μ 3-[N,N-diethylphosphinous amidato(2-)-P:P:P]](tricarbonylcobalt)di-, (2Co-Fe)(Fe-Fe) (9CI)
(CA INDEX NAME)

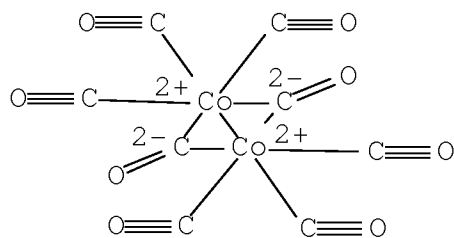


RN 91609-90-4 HCA

CN Molybdenum, dicarbonyl(η 5-2,4-cyclopentadien-1-yl)[μ 3-[N,N-diethylphosphinous amidato(2-)-P:P:P]](tricarbonylcobalt)(tricarbonyliron)-, (Co-Fe)(Co-Mo)(Fe-Mo) (9CI) (CA INDEX NAME)



IT 10210-68-1
 (reaction of, with dichlorophosphines or di-Ph diselenide)
 RN 10210-68-1 HCA
 CN Cobalt, di- μ -carbonylhexacarbonyldi-, (Co-Co) (CA INDEX NAME)



CC 29-13 (Organometallic and Organometalloidal Compounds)
 IT Redox reaction
 (of cobalt clusters, with iron tetracarbonyl dianion)
 IT Exchange reaction
 (of metals, in cobalt-iron clusters)
 IT Cluster compounds
 (cobalt-iron, metal exchange in)
 IT 69569-55-7P 87160-20-1P
 (prepn. and exchange reaction of, with iron carbonyl dianion)
 IT 22364-22-3P 35163-36-1P 88131-02-6P
 (prepn. and metal exchange reactions of)
 IT 87160-21-2P 91581-57-6P 91581-58-7P
 (prepn. and redn. of)

IT 68185-55-7P 68185-56-8P 78547-58-7P 91373-53-4P 91408-26-3P
 91408-27-4P 91408-28-5P ~~91581-59-8P~~ 91581-61-2P
 91581-62-3P 91581-63-4P 91594-40-0P ~~91609-90-4P~~
 91609-91-5P

(prepn. of)

IT 10210-68-1

(reaction of, with dichlorophosphines or di-Ph diselenide)

L111 ANSWER 13 OF 19 HCA COPYRIGHT 2008 ACS on STN

AN 97:91415 HCA Full-text

OREF 97:15239a,15242a

TI Mechanistic approaches and high pressure homogeneous hydrogenation
 of carbon monoxide

AU Keim, Wilhelm; Berger, Michael; Eisenbeis, Ansgar; Kadelka, Juergen;
 Schlupp, Johannes

CS Inst. Tech. Chem. Petrolchem., Tech. Hochsch. Aachen, Aachen,
 D-5100, Fed. Rep. Ger.

SO Journal of Molecular Catalysis (1981), 13(1), 95-106
 CODEN: JMCADS; ISSN: 0304-5102

DT Journal

LA English

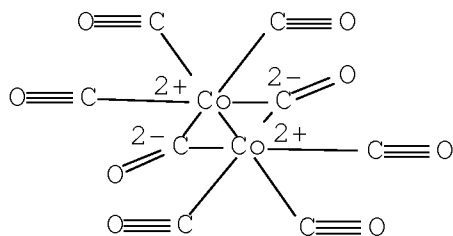
AB Complexes with sp³- and sp²-hybridized C-metal bonds were reacted
 with CO and H-CO mixts. Only insertion was obsd. in all cases.
 Clusters and complexes of Group VIII elements were used as **catalysts**
 for the homogeneous hydrogenation of CO at high pressures. A variety
 of oxygenated compds. such as Me formate, Me acetate, Et formate,
 MeOH, EtOH, PrOH, propylene glycols, ethylene glycol and glycerin was
 formed. The mechanism of the Co- **catalyzed** reactions was discussed
 and noncluster bimetallic intermediates were proposed for the key
 steps.

IT 10210-68-1

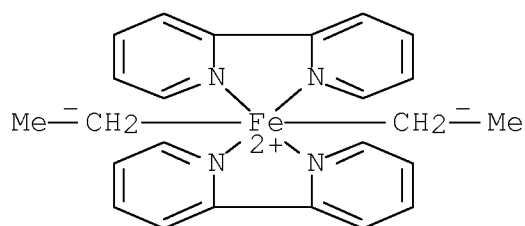
(**catalysts**, for high pressure homogeneous hydrogenation
 of carbon monoxide)

RN 10210-68-1 HCA

CN Cobalt, di-μ-carbonylhexacarbonyldi-, (Co-Co) (CA INDEX NAME)



IT 15627-21-1
 (reaction of, with carbon monoxide or carbon monoxide-hydrogen mixts.)
 RN 15627-21-1 HCA
 CN Iron, bis(2,2'-bipyridine-κN1,κN1')diethyl- (CA INDEX NAME)



CC 22-7 (Physical Organic Chemistry)
 ST carbon monoxide homogeneous hydrogenation; cluster catalysis
 carbon monoxide hydrogenation; insertion carbon monoxide metal
 IT Hydrogenation catalysts
 (group VIII carbonyls, for carbon monoxide, mechanism with)
 IT 10210-68-1 14874-82-9 15243-33-1
 (catalysts, for high pressure homogeneous hydrogenation of carbon monoxide)
 IT 630-08-0, reactions
 (hydrogenation of, catalytic, mech. of, insertion reactions with carbon-metal bonds in relation to)
 IT 15218-76-5 15380-73-1 15627-21-1 15975-90-3
 15975-91-4 15975-92-5 23272-69-7 27436-93-7 37823-96-4
 (reaction of, with carbon monoxide or carbon monoxide-hydrogen mixts.)

L111 ANSWER 14 OF 19 HCA COPYRIGHT 2008 ACS on STN

AN 93:238305 HCA Full-text

OREF 93:38159a,38162a

TI The interaction of chelated lithium complexes with transition metal compounds as catalysts in organic synthesis

AU Moser, William R.; Langer, Arthur W., Jr.

CS Badger Co., Cambridge, MA, USA

SO Catalysis in Organic Syntheses (1980), Volume Date 1978, 7th, 219-32

CODEN: CAOSDF; ISSN: 0197-534X

DT Journal

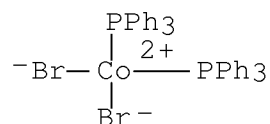
LA English

AB Several examples where the phys. and chem. properties of Li salt N-chelates offer unique advantage for the synthesis of catalysts and pure coordination complexes are provided. The catalytic activity of borohydride complexes, e.g., $\text{FeCl}(\text{BH}_4)[\text{MeN}(\text{CH}_2\text{CH}_2\text{NMe}_2)_2]$, was examd. in butadiene (I) dimerization and cyclization, propene dimerization, ketone redns. and olefin dismutation and **hydroformylation**. The complexes were active only in I reactions.

IT 14126-32-0
 (addn. of lithium complex to)

RN 14126-32-0 HCA

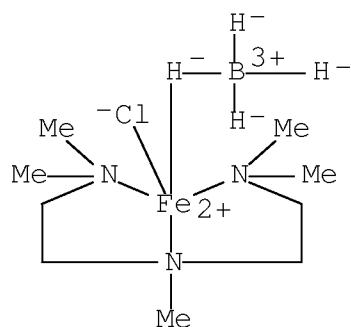
CN Cobalt, dibromobis(triphenylphosphine)-, (T-4)- (CA INDEX NAME)



IT 75747-73-8 75747-74-9 75747-75-0
 (catalysts, for reactions of butadiene)

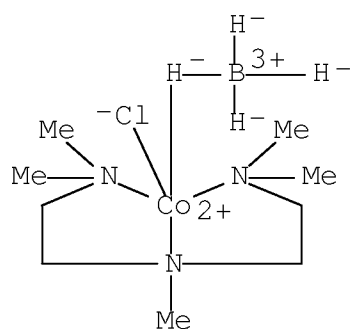
RN 75747-73-8 HCA

CN Iron, chloro[N-[2-(dimethylamino)ethyl]-N,N',N'-trimethyl-1,2-ethanediamine-N,N',N''] [tetrahydroborato(1-)-H]-, (TB-5-13)- (9CI)
 (CA INDEX NAME)

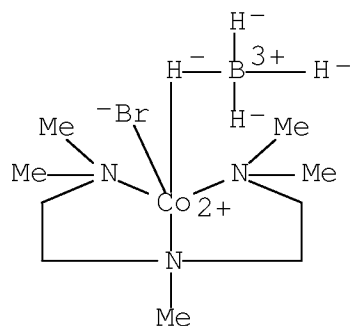


RN 75747-74-9 HCA

CN Cobalt, chloro[N-[2-(dimethylamino)ethyl]-N,N',N'-trimethyl-1,2-ethanediamine-N,N',N''] [tetrahydroborato(1-)-H]-, (TB-5-13)- (9CI)
 (CA INDEX NAME)



RN 75747-75-0 HCA
 CN Cobalt, bromo[N-[2-(dimethylamino)ethyl]-N,N',N'-trimethyl-1,2-ethanediamine-N,N',N''] [tetrahydroborato(1-)-H]-, (TB-5-13)- (9CI)
 (CA INDEX NAME)



CC 22-5 (Physical Organic Chemistry)
 Section cross-reference(s): 67
 IT ~~14126-32-0~~ 14126-37-5
 (addn. of lithium complex to)
 IT 75747-71-6 75747-72-7 ~~75747-73-8~~ ~~75747-74-9~~
~~75747-75-0~~
 (catalysts, for reactions of butadiene)

L111 ANSWER 15 OF 19 HCA COPYRIGHT 2008 ACS on STN
 AN 93:188998 HCA Full-text
 OREF 93:30115a,30118a
 TI **Catalyst** for the refining of liquid and gaseous industrial mixtures containing mercaptans
 IN Nametkin, N. S.; Sobolev, V. M.; Tyurin, V. D.; Nechaev, A. I.; Larionov, L. I.; Nechaeva, L. A.; Zhadanovskii, N. B.; Kukina, M.

A.; Dekhterman, A. S.; et al.

PA Topchiev, A. V., Institute of Petrochemical Synthesis, USSR; Gubkin, I. M., Institute of the Petrochemical and Gas Industry, Moscow; Gorki State Institute for Designing Plants of the Petroleum Refining and Petrochemical Industry; Novogorkovsk Petroleum Refining Plant

SO Ger. Offen., 55 pp.
CODEN: GWXXBX

DT Patent

LA German

FAN.CNT 1

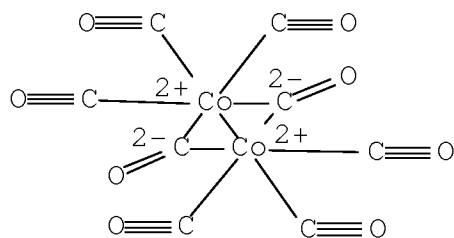
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	
PI	DE 2829547	A1	19800124	DE 1978-2829547	19780705
				<--	
	NL 7807124	A	19800103	NL 1978-7124	19780630
				<--	
PRAI	DE 1978-2829547	A	19780705	<--	

AB Carbonyl compds. of monomeric or polymeric complexes of Fe and/or Group VI-VIII metals are **catalysts** for oxidizing mercaptans in mixts., i.e. petroleum products, to disulfides. Thus, heating 26.4 g Mo(CO)₆ and 7.6 g CH₂:CHCH₂Cl [107-05-1] in 250 mL MeCN 5 h at 50° gives 12.1 g π-C₃H₅(MeCN)₂Mo(CO)₂Cl (I) [33221-75-9]. Countercurrent scrubbing with a kerosine soln. of I of a mixt. of H₄, CH₄ 76.8, C₂H₆ 4.4, C₃H₈ 1.7, C₄H₁₀ 0.8, and N 12.3% contg. 090043% mercaptan S lowers the mercaptan S content to 0.0003%.

IT 10210-68-1D, reaction products with aminotriazole deriv. polymers 22852-98-8 37081-11-1
(**catalysts**, for oxidn. of mercaptans in org. compds.)

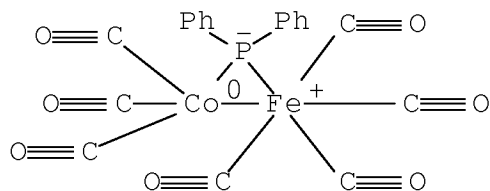
RN 10210-68-1 HCA

CN Cobalt, di-μ-carbonylhexacarbonyldi-, (Co-Co) (CA INDEX NAME)



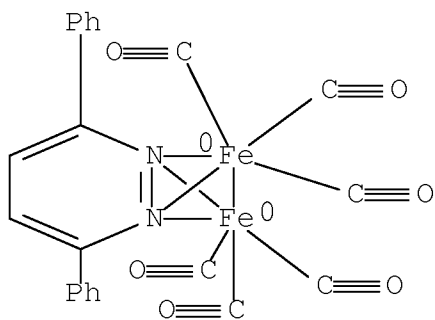
RN 22852-98-8 HCA

CN Iron, tetracarbonyl[μ -(diphenylphosphino)](tricarbonylcobalt)-,
(Co-Fe) (9CI) (CA INDEX NAME)



RN 37081-11-1 HCA

CN Iron, hexacarbonyl[μ -(3,6-diphenylpyridazine-N1,N2:N1,N2)]di-,
(Fe-Fe) (9CI) (CA INDEX NAME)



IC B01J031-26; C10G023-02

CC 51-5 (Fossil Fuels, Derivatives, and Related Products)

Section cross-reference(s): 35, 49, 67

ST **catalyst** oxidn mercaptan disulfide; molybdenum complex

catalyst oxidn; allylmolybdenum complex **catalyst**

oxidn; acetonitrile complex molybdenum **catalyst**; carbonyl

molybdenum **catalyst** oxidn; natural gas mercaptan oxidn

IT Carbonyls

(**catalysts**, for oxidn. of mercaptans in org. compds.)

IT Alcohols, uses and miscellaneous

Hydrocarbons, uses and miscellaneous

Natural gas

(mercaptan removal from, oxidn. **catalysts** for)

IT Oxidation **catalysts**

(metal chelates, for thiols in org. compds.)

IT Thiols, reactions

(oxidn. of, in org. compds., **catalysts** for)
IT 62-53-3D, manganese complexes 107-05-1D, palladium complexes
121-44-8D, iron complexes 584-13-4D, deriv., polymers, reaction
products with cobalt carbonyl 6783-75-1D, cobalt complexes
9002-98-6D, reaction products with iron carbonyls 9003-17-2D,
complexes with iron carbonyl 9003-39-8D, reaction products with
iron carbonyls ~~10210-68-1D~~, reaction products with
aminotriazole deriv. polymers 12152-72-6 12253-47-3D, reaction
products with iron carbonyl 13007-92-6D, reaction products with
polyureas 13463-40-6D, reaction products with butadiene-vinyl
piciline polymers 13939-06-5D, reaction products with
poly(vinylpyridine) 14971-26-7D, reaction products with thiazole
deriv. polymers and sodium iron carbonyl 15228-21-4 15668-57-2
17685-52-8D, reaction product with polymers 19456-57-6
22309-04-2 ~~22852-98-8~~ 25085-55-6D, complexes with iron
carbonyl 25232-41-1D, reaction product with molybdenum carbonyl
27044-31-1D, reaction products with iron carbonyls 29384-95-0D,
iron complexes 31082-69-6 32716-35-1 33221-75-9 33678-01-2
~~37081-11-1~~ 52390-31-5 55958-48-0D, reduced 73906-13-5
73906-15-7 73906-16-8 73906-18-0 73906-20-4 73914-10-0
73914-37-1 73929-52-9 80238-56-8

(**catalysts**, for oxidn. of mercaptans in org. compds.)
IT 1101-41-3
(reaction of, with iron carbonyl and cobalt
carbonyl)

L111 ANSWER 16 OF 19 HCA COPYRIGHT 2008 ACS on STN

AN 93:25827 HCA Full-text

OREF 93:4325a,4328a

TI High-pressure homogeneous hydrogenation of carbon monoxide in polar
and nonpolar solvents

AU Keim, W.; Berger, M.; Schlupp, J.

CS Inst. Tech. Chem. Petrolchem., Rheinisch-Westfael. Tech. Hochsch.,
Aachen, D-5100, Fed. Rep. Ger.

SO Journal of Catalysis (1980), 61(2), 359-65

CODEN: JCTLA5; ISSN: 0021-9517

DT Journal

LA English

AB The homogeneous hydrogenation of CO was carried out at high pressures
over clusters and complexes of Group VIII elements of the periodic
table as catalysts. A variety of oxygenated compds. such as HCO₂Me,
HCO₂Et, AcOMe, MeOH, EtOH, PrOH, propylene glycols, ethylene glycol,
and glycerin were formed in varying degrees. The polarity of the
solvent plays an important role. In the nonpolar system
toluene/Co₂(CO)₈, good conversions and selectivities to HCO₂Me, MeOH
and ethylene glycol were obsd. The mechanism of the Co-catalyzed

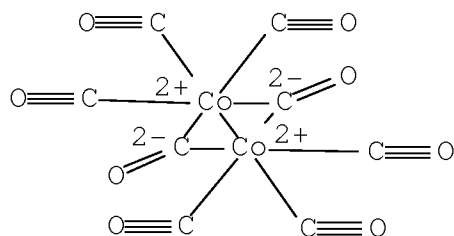
reactions is discussed and noncluster intermediates are proposed for the key steps.

IT 10210-68-1 17685-52-8

(catalysts, for homogenous high-pressure hydrogenation of carbon monoxide)

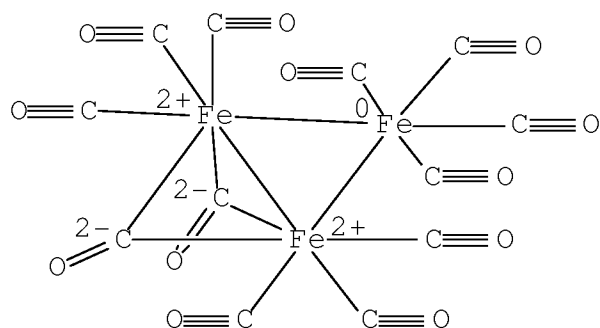
RN 10210-68-1 HCA

CN Cobalt, di- μ -carbonylhexacarbonyldi-, (Co-Co) (CA INDEX NAME)



RN 17685-52-8 HCA

CN Iron, di- μ -carbonyldecacarbonyltri-, triangulo (CA INDEX NAME)

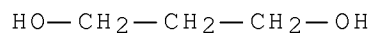


IT 504-63-2P

(prepn. of, by hydrogenation of carbon monoxide)

RN 504-63-2 HCA

CN 1,3-Propanediol (CA INDEX NAME)



CC 23-7 (Aliphatic Compounds)

IT 3264-82-2 ~~10210-68-1~~ 14024-61-4 14874-82-9
 15243-33-1 15696-40-9 16941-12-1 ~~17685-52-8~~
 18827-81-1
 (catalysts, for homogenous high-pressure hydrogenation of carbon monoxide)

IT 56-81-5P, preparation 57-55-6P, preparation 64-17-5P,
 preparation 67-56-1P, preparation 71-23-8P, preparation
 79-20-9P 107-21-1P, preparation 107-31-3P 109-94-4P
~~504-63-2P~~ 628-35-3P
 (prepn. of, by hydrogenation of carbon monoxide)

L111 ANSWER 17 OF 19 HCA COPYRIGHT 2008 ACS on STN
 AN 89:155497 HCA Full-text
 OREF 89:23975a,23978a

TI Photo-induced declusterification of $\text{HCCo}_3(\text{CO})_9$, $\text{CH}_3\text{CCo}_3(\text{CO})_9$, and $\text{HFeCo}_3(\text{CO})_{12}$

AU Geoffroy, Gregory L.; Epstein, Ronald A.
 CS Dep. Chem., Pennsylvania State Univ., University Park, PA, USA
 SO Advances in Chemistry Series (1978), 168(Inorg. Organomet. Photochem.), 132-46
 CODEN: ADCSAJ; ISSN: 0065-2393

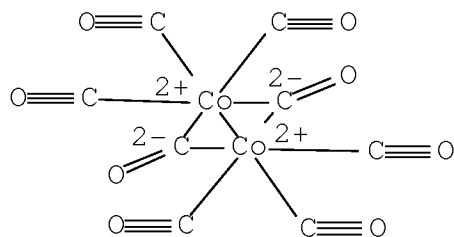
DT Journal
 LA English

AB Irradn. of solns. of $\text{HCCo}_3(\text{CO})_9$ under a H_2 atm. with visible or UV light leads to quant. formation of $\text{Co}_4(\text{CO})_{12}$ and prodn. of CH_4 . Under a 3:1 H_2 :CO atm., irradn. produces $\text{Co}_2(\text{CO})_8$ with a 366-nm quantum yield of 0.03. Photolysis in the presence of D_2 showed that the CH_4 derives from the apical CH group and not from CO. Irradn. of $\text{HCCo}_3(\text{CO})_9$ in the presence of H_2 and 1-hexene leads to **catalytic** isomerization to cis- and trans-2-hexene. The photochem. properties of $\text{MeCCo}_3(\text{CO})_9$ parallel those of $\text{HCCo}_3(\text{CO})_9$ except that no reaction occurs under a H_2 -CO atm. Irradn. of $\text{HFeCo}_3(\text{CO})_{12}$ and $\text{HFeCo}_3(\text{CO})_{10}(\text{PPh}_3)_2$ in degassed solns. also leads to declusterification with subsequent formation of $\text{Co}_4(\text{CO})_{12}$ and $\text{Co}_2(\text{CO})_6(\text{PPh}_3)_2$, resp. The Fe-contg. products were not identified.

IT ~~10210-68-1P~~
 (formation of, in photolysis of cobalt carbonyl cluster complex in hydrogen-carbon monoxide atm.)

RN 10210-68-1 HCA

CN Cobalt, di- μ -carbonylhexacarbonyldi-, (Co-Co) (CA INDEX NAME)

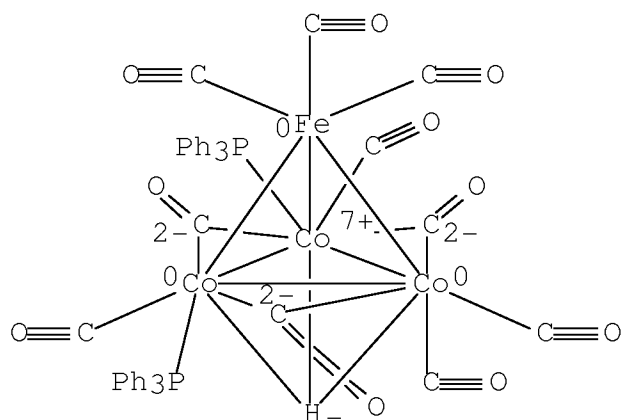


IT 56009-83-7

(photolysis of, degassed solns., declusterification in)

RN 56009-83-7 HCA

CN Iron, tricarbonyl[tri- μ -carbonyltetracarbonyl- μ^3 -hydrobis(triphenylphosphine)tricobalt]-, (3Co-Co)(3Co-Fe), stereoisomer (9CI) (CA INDEX NAME)



CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic Processes)

ST photolysis organometallic cluster complex; cobalt carbonyl cluster complex photolysis; iron cobalt cluster complex photolysis

IT Photolysis

(of cobalt and cobalt iron carbonyl cluster complex, declusterification in)

IT 10210-68-1P

(formation of, in photolysis of cobalt carbonyl cluster complex in hydrogen-carbon monoxide atm.)

IT 24212-54-2P

(formation of, in photolysis of cobalt iron carbonyl triphenylphosphine cluster complex)

IT 1333-74-0, uses and miscellaneous
 (photolysis of cobalt and cobalt iron
 carbonyl cluster complexes in presence of)
 IT 630-08-0, uses and miscellaneous
 (photolysis of cobalt and cobalt iron
 carbonyl cluster complexes in presence of hydrogen and)
 IT 21750-96-9 56009-83-7
 (photolysis of, degassed solns., declusterification in)

L111 ANSWER 18 OF 19 HCA COPYRIGHT 2008 ACS on STN

AN 75:40967 HCA Full-text

OREF 75:6451a,6454a

TI First-row transition metal complexes for use as hydrogenation
 catalysts

IN Lagrange, Yvon; Martino, Germain

PA Institut Francais du Petrole, des Carburants et Lubrifiants

SO Fr. Demande, 7 pp.

CODEN: FRXXBL

DT Patent

LA French

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	
PI	FR 2034147		19710108	FR 1969-3224	196902 11

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AB A method is described for the prepn. of organometallic compds. which
 can be used as hydrogenation, **hydroformylation**, and codimerization
 catalysts. They have as a general formula $H_xX_yML_n$, where x and y are
 nos. in the range 0-1, n a pos. integer that takes the values 1 or 2,
 X a halogen atom or a ClO_4^- or NO_3^- ion and M a metal of the first
 transition metals row (namely Fe, Co, or Ni). L is a ligand with 2
 bound atoms such as 1,2- bis(diphenylphosphino)ethane or -propane, or
 any other similar compd. contg. 2 atoms of Group VA such as P and As.
 These 2 atoms can be coordinated on the same metal ion. The process
 is characterized by the fact that a compd. of the former metals is
 reduced by NH_2-NH_2 (or a deriv.) in the presence of one of the above
 coordinates. The hydrazine derivative is characterized by the fact
 that 1 hydrogen atom is replaced by an hydrocarbon chain contg. 1 to
 20 atoms. Typically, 3 g $CoCl_2(DPE)_2$, where DPE is 1,2-
 bis(diphenylphosphino)ethane, and 1 g hydrazine hydrate are dissolved
 in 50 cm³ 2-propanol and stirred for 1 hr at 40° under H_2 atm. A
 ppt. is obtained and isolated which corresponds to $HCo(DPE)_2$. The
 yield is of the order of 90%.

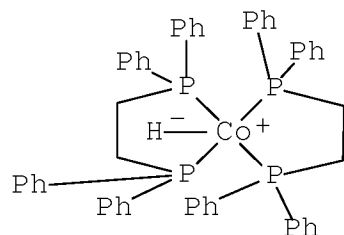
IT 18433-72-2P 32490-70-3P 33395-95-8P

33395-96-9P

(catalysts, manuf. of)

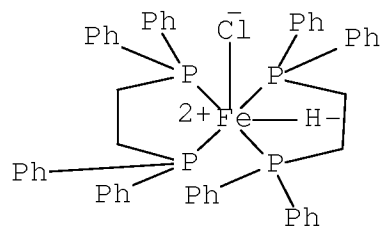
RN 18433-72-2 HCA

CN Cobalt, bis[1,2-ethanediylbis[diphenylphosphine]-P,P']hydro- (9CI)
(CA INDEX NAME)



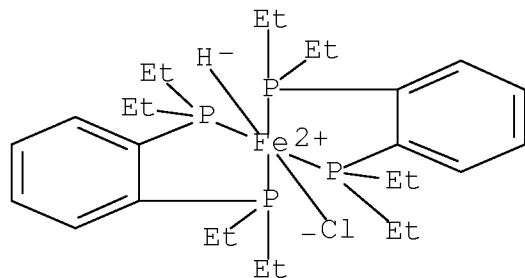
RN 32490-70-3 HCA

CN Iron, chlorobis[1,1'-(1,2-ethanediyl)bis[1,1-diphenylphosphine-κP]]hydro- (CA INDEX NAME)

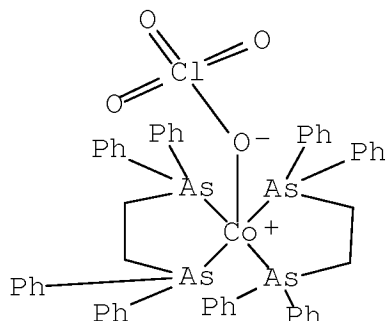


RN 33395-95-8 HCA

CN Iron, chlorohydrobis[o-phenylenebis[diethylphosphine]]- (8CI) (CA INDEX NAME)



RN 33395-96-9 HCA
CN Cobalt, bis[ethylenebis[diphenylarsine]]perchlorato- (8CI) (CA
INDEX NAME)



IC B01J
CC 67 (Catalysis and Reaction Kinetics)
IT 15628-25-8P 18433-72-2P 32490-70-3P
33364-30-6P 33364-31-7P 33395-95-8P 33395-96-9P
1663-45-2D, Phosphine, ethylenebis[diphenyl-, transition metal
complexes 4431-24-7D, Arsine, ethylenebis[diphenyl-, cobalt
complexes 19845-68-2D, Phosphine, o-phenylenebis[diethyl-,
transition metal complexes
(catalysts, manuf. of)

L111 ANSWER 19 OF 19 HCA COPYRIGHT 2008 ACS on STN

AN 63:3424 HCA Full-text

OREF 63:630d-e

TI Reaction of a cobalt-containing Ziegler-type system with carbon
monoxide. Direct synthesis of dicobalt octacarbonyl and an
acylcobalt tetracarbonyl at room temperature

AU Szabo, Pal; Marko, Laszlo

CS Hungarian Oil Gas Res. Inst., Veszprem

SO Journal of Organometallic Chemistry (1965), 3(5), 364-6

CODEN: JORCAI; ISSN: 0022-328X

DT Journal

LA English

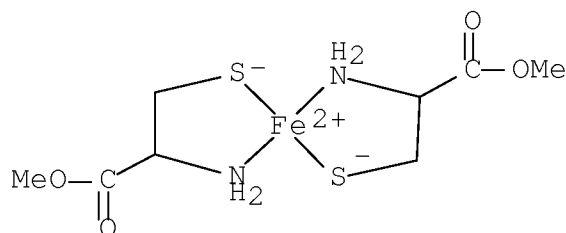
AB Propionylcobalt tetracarbonyl and dicobalt octacarbonyl are formed at
room temp. from triethylaluminum and cobalt stearate-contg. hexane
solns. by reacting with carbon monoxide. The formation of the
acylcobalt tetracarbonyl complex proves the presence of ethylcobalt
groups in this Ziegler-type system and is the first direct synthesis
of an acylmetal carbonyl deriv. Nickel- and iron-contg. analogous
solns. give nickel tetracarbonyl and iron pentacarbonyl, resp.

IT 12241-31-5

(Derived from data in the 7th Collective Formula Index
(1962-1966))

RN 12241-31-5 HCA

CN Iron, bis(methyl L-cysteinato-N,S)- (9CI) (CA INDEX NAME)

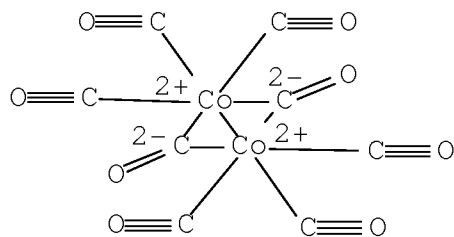


IT 10210-68-1P, Cobalt carbonyl, Co₂(CO)₈

(prepn. of, at room temp.)

RN 10210-68-1 HCA

CN Cobalt, di-μ-carbonylhexacarbonyldi-, (Co-Co) (CA INDEX NAME)



CC 39 (Organometallic and Organometalloidal Compounds)

IT Catalysts and Catalysis

(in cobalt carbonyl prepn. from CO, Co-contg. Ziegler)

IT 12241-31-5

(Derived from data in the 7th Collective Formula Index
(1962-1966))

IT 10210-68-1P, Cobalt carbonyl, Co₂(CO)₈

(prepn. of, at room temp.)

IT 630-08-0, Carbon monoxide

(reactions of, with Co-contg. Ziegler catalysts, Co
carbonyls by)